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JANUARY-FEBRUARY 1982

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INTRODUCTION

The Urban Mass Transportation Administration (UMTA) Bi-Monthly Abstracts is published by UMTA's Information Services Staff. It contains abstracts of the results of the Research, Development, and Demonstrations; Technical Studies; and University Research projects (Sections 6, 8/9, and 11 of the Urban Mass Transportation Act of 1964, as amended), which were sponsored and funded by UMTA. The abstracted reports are available from the National Technical Information Service (NTIS). Order and loan information is provided in this report. Each abstract shown provides information on the report title, personal and corporate author(s), source of UMTA funding, date of publication, NTIS order number, and NTIS price code. The Bi-Monthly Abstracts also include a list of recent Section 8/9 acquisitions, which are arranged by state. These Section 8/9 reports are not available from NTIS. Loan copies have been deposited with the TRISNET Regional Centers.

The Abstracts is arranged into seventeen subject classifications, and within each classification, the arrangement is alphabetical by title. These subject classifications are listed after this Introduction. A Cumulative Retrieval Term Index appears at the end of every third issue of the Bi-Monthly Abstracts. The next Index will appear in May-June 1982.

The Annual Cumulative Report of the UMTA Abstracts no longer exists. It has been replaced by the Urban Mass Transportation Research Information Service (UMTRIS). UMTRIS is sponsored by UMTA, but service and publication of the Annual Abstracts report is now located with the Transportation Research Board (TRB), National Academy of Sciences, 2101 Constitution Avenue, N.W., Washington, DC 20418. For further information regarding UMTRIS and its reports, contact Mr. Fred Houser, Manager of UMTRIS, at TRB.

Questions and comments concerning this Bi-Monthly Abstracts and the reports cited within it, should be addressed to: U.S. Department of Transportation, Urban Mass Transportation Administration, Information Services, Room 6432, 400 Seventh Street, S.W., Washington, D.C. 20590, Telephone: (202) 426-9157.

UMTA ABSTRACTS SUBJECT CLASSIFICATION

01. Conventional Transportation Services

02. Center City/Traffic Restraints

03. Energy and Environment

04. Fares/Pricing and Services Innovations

05. Financing

06. Land Use

07. Non-Urban and Low-Density Area Transportation

08. Paratransit Systems and Services

09. Planning, Policy and Program Development

10. Political Processes and Legal Affairs

11. Safety/Product Qualification and Security

12. Socioeconomics

13. Technonology Development and Deployment
    - A. Bus and Paratransit Vehicle Technology
    - B. Bus and Paratransit Operational Technology
    - C. New Systems and Automation
    - D. Rapid Rail Vehicles and Systems
    - E. Commuter Rail Vehicles and Systems
    - F. Light Rail Vehicles and Systems
    - G. Construction/Tunneling Technology

14. Transportation of Disadvantaged/Special-User Groups

15. Transportation/Transit Management

16. Transportation Productivity and Efficiency

17. Urban Goods Movement

UMTA-SPONSORED REPORTS AVAILABLE FROM THE NATIONAL TECHNICAL INFORMATION SERVICE

03. ENERGY AND ENVIRONMENT

Urban Transportation Energy Accounts. Volume I: Procedures Manual. Volume II: Case Study of the Chicago Region. (Volumes I and II are bound together)

Boyce, D. E., et al. University of Illinois at Urbana-Champaign, Department of Civil Engineering. UMTA-IL-11-0027-81-1, September 1981, 255p.

The Urban Mass Transportation Planning System (UTPS) of the U.S. Department of Transportation, can be used for multi-modal transportation planning, and is supported by both the Urban Mass Transportation Administration (UMTA) and the Federal Highway Administration (FHWA). The Planning Package (PLANPAC) is an older set of transportation planning modules developed by FHWA, and can only be used for highway systems modeling. The energy accounting procedures in this manual are compatible with both the UTPS and PLANPAC systems. The concept of energy consumption per person trip is intended to focus the attention of decision makers on the energy consumed by individuals making trips among specified locations. Energy consumption per person is the appropriate measure for comparing modes because it represents the amount of energy required by alternative modes to supply the same unit of service, or, one person trip for a given origin-destination pair. This manual, Volume I, describes procedures for compiling a set of urban transportation energy accounts. These procedures deal specifically with ground-mode person travel in an urbanized area, but could be generalized to other modes, commodities, and regions. The report presents estimates of direct and indirect energy consumption compiled at the link level as a function of link length, operating speed, and vehicle flow. These estimates are allocated to each person traveling on the link in order to calculate origin-to-destination energy consumption for auto and transit trips. The resulting estimates of energy consumption are aggregated to districts, rings, and sectors for presentation purposes. Volume II presents a case study of the region which illustrates the application of the energy accounting methods to a large urban region. Direct and indirect energy consumption for a typical morning peak period in 1975 are presented by mode, origin, and destination districts, rings, and sectors. The results indicate that direct and indirect energy consumption are approximately equal for automobiles, but for transit, indirect energy is over 1.5 times as large as direct energy.

NTIS No. PB 82-135542 **Price A12**

04. FARES/PRICING AND SERVICES INNOVATIONS

Future Directions for Transit Pricing: Proceedings of the September 1980 Conference on Transit Pricing Innovations.

Heaton, C. and H. Slavin. U.S. Department of Transportation, Research & Special Programs Administration. UMTA-MA-06-0049-81-8, April 1981, 51p.

This report documents the proceedings of a Conference on transit pricing innovations held at the National Academy of Sciences Study Center at Woods Hole, Massachusetts, from September 3-5, 1980. The Conference was sponsored by the Service and Methods Demonstrations Program of the Urban Mass Transportation Administration, in cooperation with the Transportation Research Board. The purpose of the Conference was to provide practical guidance to policymakers and transit operators on improved pricing policies and strategies and was conducted in a series of plenary and concurrent workshop sessions. The first part of the proceedings presents a summary of major conference findings and recommendations; the second part consists of transcripts of the opening morning plenary session presentations; and the third part contains summaries of the three concurrent workshops dealing with transit pricing policy, such as the implementation issues and the impacts of price and service variations. Following each workshop summary is a list of participants and their affiliations. Many of the research studies and demonstrations of the informal workshop presentations are described in the references appearing at the end of the proceedings. There was unanimous agreement at the conference that current transit pricing practices are in need of improvements. Recognizing the likelihood of dwindling subsidy funds, the conference attendees concurred in the need for a more business-like approach to transit pricing, such as cost-based pricing, and more attention to quality of transit product and its efficient production.

NTIS No. PB 82-149949 **Price A04**

09. PLANNING, POLICY AND PROGRAM DEVELOPMENT

Los Angeles County Transportation Commission Public Policy Impact Study (1977-1980).

Shaw, P. L. and R. Simon. California State University at Long Beach, Center for Public Policy & Administration, Bureau of Governmental Research & Service. UMTA-CA-11-0002-81-1, April 1981, 150p.

The Los Angeles County Transportation Commission (LACTC) is a new and unprecedented transportation policy planning and coordinating institution. It is directed by a board of the principal county and city elected officials. The Commission powers are for short-range planning, resource generation and allocation, policy and program development, project selection, and new system development. This report documents and analyzes key formal activities of this new transportation agency from its inception in January 1977. The first year study examines the background and start-up period (1977-1978) and the second year study (1978-1979) examines the LACTC goal setting process, coordination of

transit service, development of new systems, and intergovernmental entrepreneurship. The main focus of this report is on the third year of the study (1979-1980), which reviews: 1) Los Angeles in perspective; 2) LACTC powers and activities, 1977-1980; 3) Structural comparison of LACTC and other main urban transportation institutions; 4) Critical policy issues; and 5) Public policy impacts in an era of declining resources.

NTIS No. PB 82-151523 **Price A07**

11. SAFETY/PRODUCT QUALIFICATION AND SECURITY

Annotated Bibliography of Rail Transit Safety, 1975-1980, with Emphasis on Safety Research and Development.

Pawlak, R. J.; R. M. Snow; and M. E. Metcalf. U.S. Department of Transportation, Research & Special Programs Administration. UMTA-MA-06-0098-81-2, September 1981, 226p.

This bibliography provides a comprehensive review of published literature concerning rail transit safety and includes 186 annotated entries. The report covers domestic and foreign material on rail transit safety and related safety research and development (R&D) and supports the Safety R&D Program Element of the Urban Mass Transportation Rail Transit Safety Program. The Bibliography is concerned with safety aspects of the design and functioning of operating transit systems. Among the topics covered are train accidents (collisions, crashworthiness, derailments, and fires); evacuations; patron safety on and off trains; trespassers; and safety management. Because of its operational emphasis, the scope of this Bibliography does not include documents which deal exclusively with safety practices during facility construction, security against crime, or commuter rail. The primary period covered by this Bibliography is 1975-1980. Work completed prior to 1975 is covered by the literature survey which forms Appendix D of the report: "Safety Program Plan Development for the Ofice of Safety and Product Qualification of the Urban Mass Transportation Administration," prepared by the University of Southern California in 1977.

NTIS No. PB 82-151473 **Price A11**

12. SOCIOECONOMICS

Innovative Approaches to Understanding Transportation/Societal Interactions. Volume I: Program Overview and Executive Summaries.

U.S. Department of Transportation, Research & Special Programs Administration. UMTA-MA-06-0039-81-1, October 1981, 88p.

In 1979, the Transportation Systems Center (TSC) under sponsorship of the Urban Mass Transportation Administration (UMTA), began a program of research directed toward improving the understanding of the role of transportation in society, in particular with respect to patterns of travel, location, and development. As a major element of the program, innovative approaches to defining, structuring, or solving the problems were sought from the research community. This report contains seven study design reports prepared by six research firms who were awarded contracts to produce detailed work plans for refining and demonstrating proposed innovative analytic approaches to

understanding transportation/societal interactions. The seven approaches and corresponding contractors are: 1) Cambridge Systematics - Residential Housing and Location Model; 2) DAA Enterprises - Systems Dynamics Model; 3) Futures Group - Probabilistic Systems Dynamics Model; 4) Interchange - Analysis of Demography, Housing, and Transportation; 5) Interchange - Micro-Economic Model; 6) Research Triangle Institute - Comparative Analysis of Urban Spatial Structures; and 7) University of Illinois - Societal Linkages Model. This volume, Volume 1, contains the Executive Summaries of the study design reports, a description of the research program, and technical evaluations of the seven study designs by a TSC/UMTA review team.

NTIS No. PB 82-159021 **Price A05**

Innovative Approaches to Understanding Transportation/Societal Interactions. Volume 2: Study Design Reports.

U.S. Department of Transportation, Research & Special Programs Administration. UMTA-MA-06-0039-81-2, October 1981, 786p.

This volume, Volume 2, contains the study design reports of this study.

NTIS No. PB 82-159039 **Price A99**

13. TECHNOLOGY DEVELOPMENT AND DEPLOYMENT

13A. BUS AND PARATRANSIT VEHICLE TECHNOLOGY

Computer Simulations and Literature Survey of Continuously Variable Transmissions for Use in Buses.

Barrows, T. U.S Department of Transportation, Research & Special Programs Administration. UMTA-MA-06-0119-81-4, December 1981, 45p.

Numerous studies have been conducted on the concept of flywheel energy storage for buses. Flywheel systems require a continuously variable transmission (CVT) of some type to transmit power between the flywheel and the drive wheels. However, a CVT can provide some fuel economy benefit with or without an energy-storing flywheel, which is the focus of this report. This computer study and literature review is intended to provide insight into the potential applicability of CVTs to buses. It considers several examples of CVTs in buses, both with and without flywheel energy storage, and finds a predicted energy savings of 10 to 32 percent. This analysis focuses on the use of a CVT alone, without regenerative braking. Computer simulations are made to compute the fuel use of a bus with two different CVTs - one with a ratio range of 6, and the other of an infinite ratio range. For the former, assuming an efficiency of 85 percent, a fuel savings of 12 to 22 percent is predicted, depending upon the driving cycle. It is shown that a substantial part of this savings arises from the simple fact that the accessories operate at a lower speed. For this reason, a separate study of accessory speed control has been conducted, yielding a predicted fuel savings of as high as 17 percent. The report concludes that such accessory speed control may represent an attractive way to reduce fuel consumption. In comparison with the CVT, the concept is more compatible with present bus technology.

NTIS No. PB 82-156795 **Price A03**

13C. NEW SYSTEMS AND AUTOMATION

Systems Operations Studies for Automated Guideway Transit Systems: Quantitative Analysis of Alternative AGT Operational Control Strategies.

Bonderson, L.S. General Motors Corporation, GM Transportation Systems Division, GM Technical Center, under contract to U.S. Department of Transportation, Research & Special Programs Administration. UMTA-MA-06-0048-81-6, October 1981, 203p.

The objectives of the Systems Operation Studies (SOS) for Automated Guideway Transit (AGT) systems are to: 1) develop models for the analysis of system operations; 2) evaluate performance and cost; and 3) establish guidelines for the design and operation of AGT systems. This report documents analyses of the performance, cost, and operating characteristics of the functions of vehicle control, headway protection, longitudinal control, merge strategy, and dispatch strategy. Several options were defined for each control function and evaluated both analytically and through experiments of vehicle motion on link, merge, and intersection guideway elements at the subsystem level. Several specific control strategy combinations were also evaluated at the system level through AGT system simulations. The performance effect of vehicle entrainment both at stations and on the guideway was also evaluated at the system level. Alternative strategies/combinations were compared and guidelines were stated for choosing between control alternatives. The minimum operational headway analysis showed that the vehicle control and headway protection combination consisting of continuous moving block headway protection and fixed block vehicle follower control offers no advantage over the simpler combination using fixed blocks for both functions. In all cases, point follower control was found to require longer headway separation than vehicle follower control because of the focusing distance phenomenon during line speed changes.

NTIS No. PB 82-148958 Price A10

13D. RAPID RAIL VEHICLES AND SYSTEMS

Investigation of Design Standards for Urban Rail Transit Elevated Structures.

Harrington, B. W. Harrington, George & Dunn, P.C. UMTA-GA-06-0010-81-1, June 1981, 47p.

The purpose of this report was to review the various criteria for design of elevated rail transit structures currently in use by selected transit properties and to determine the feasibility of industry-wide guidelines for their design and to compile them in one source. The criteria was to be reviewed to determine the differences and similarities and an evaluation was to be made as to the feasibility of a uniform industry-wide criteria for design of elevated transit structures similar to the AASHTO Standard Specifications for Highway Bridges. This was accomplished through a library search, review of selected design criteria, and designs completed using these criteria and personal interviews. Generally, it was concluded that many similarities exist between criteria currently in use. The differences noted were minor and generally were related to unique operational

considerations, state-of-the-art at time of criteria development, and type of transit cars in use on the system. Because of the numbers of similarities between the reviewed criteria, it was concluded that a uniform industry-wide criteria for design of elevated transit structures could be developed. However, it should be flexible enough for accomodating unique conditions that would occur throughout the country.

NTIS No. PB 82-130857 **Price A03**

Metropolitan Atlanta Rapid Transit Authority Transit Vehicle Engineering Tests.
Mutter, H., et al. Transportation Test Center, in cooperation with Boeing Services International, Inc. UMTA- 0-06-0001-81-2, August 1981, 405p.

Technical specifications for 80 new rapid transit cars of the married pair Types A and B and 20 cars of an autonomous Type C were released by the Metropolitan Atlanta Rapid Transit Authority (MARTA) in 1975. In cooperation with the Urban Mass Transportation Administration, MARTA requested that the Federal Railroad Administration conduct engineering tests on a married pair of Type A and B production vehicles. The purpose of the test program was to evaluate the MARTA rapid transit cars in the area of performance (propulsion, control, braking, and energy consumption); ride quality; and interior and wayside noise, using standardized test procedures. This report presents the results of the tests, which were performed at the Transportation Test Center from the period of May 1980 through January 1981. Special engineering tests were made to evaluate energy conservation methods, three brake configurations, and three vertical damping configurations. Vehicle curving tests were conducted to investigate the behavior of the vehicle on sharply curved track to determine the effect of certain modifications to the track and to derive wheel flange wear indices. The tests showed that the vehicles met the acceleration and time to speed specification requirements in any braking mode. The final brake configuration met braking rate requirements for friction only and emergency modes, but fell short of requirements in the dynamic and blended mode above 40 miles per hour. Wheel flange wear indices were developed for variation in axle misalignments and primary suspension longitudinal stiffness.

NTIS No. PB 82-126392 **Price A18**

14. TRANSPORTATION OF DISADVANTAGED/SPECIAL-USER GROUPS

Human Services Transportation Coordination Study, 1980.
The Human Services Institute, Inc. of Montgomery County, Pennsylvania. UMTA-IT-09-0093-81-1, 1980, 180p.

This study was initiated on behalf of the Montgomery County, Pennsylvania Planning Commission on May 1, 1978. A major impetus for this study was the realization that the rapid growth of human services transportation in the County was resulting in significant expenditures of manpower, money, and equipment, but with an apparent lack of the kind of system cohesion normally associated with such growth. This study focuses on an assessment and analysis of the transportation resources of sixty human services agencies which provide programs to the youth, aged, and handicapped of the County. The basic purposes of this study were to: 1) understand and assess the strengths and weaknesses of the County's present human services transportation network; 2) analyze these strengths and weaknesses; and 3) present findings and recommendations directed at improving the current system where indicated. This study was limited to

addressing the transportation service aspect of human service agencies. The study recommends that public transportation resources be utilized whenever available and appropriate to link client with service. The contribution of volunteer manpower and vehicles is recognized, and a continued high priority is given to ongoing use of this essential resource. Several strategies for better coordination are presented, including joint sharing of vehicles and centralization of system purchasing. To insure more efficient monitoring and evaluation, a standardized data collection format is encouraged. A permanent ongoing advisory board is recommended that would establish immediate and long range goals for human services transportation in the County. The study concluded that the existing network of services constitutes a significant investment of capital and operating expenditures by both the public and private sectors.

NTIS No. PB 82-143124 **Price A09**

REPORT AVAILABILITY

The reports on the preceding pages may be purchased from the National Technical Information Serice (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161 (703) 487-4650.

Loan copies of these reports have been deposited with the TRISNET Regional Centers at: U.S. Department of Transportation Library, 400 Seventh Street, S.W., Room 2130, Washington, D.C. 20590; Transportation Library, Northwestern University, Evanston, Illinois 60201; and Institute of Transportation Studies Library, University of California at Berkeley, 412 McLaughlin Hall, Berkeley, California 94720.

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Issue 8

January 1982

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A15	25.50	E15	37.50	T15	960.00
A16	27.00	E16	40.50	T16	1,020.00
A17	28.50	E17	43.50	T17	1,080.00
A18	30.00	E18	46.50	T18	1,140.00
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UMTA SECTION 8/9 TECHNICAL REPORT INDEX
JANUARY-FEBRUARY 1982

This Section 8/9 Index is intended to serve as a guide to the technical study reports sponsored by the Urban Mass Transportation Administration of the U.S. Department of Transportation, Washington, D.C., in accordance with Section 8 of the Urban Mass Transportation Act of 1964, as amended.

Section 8 provides for contracts and grants to states and local public agencies for the planning, engineering, designing, and evaluation of urban mass transportation projects; the development of regional transportation plans; and various other technical studies. Section 8 activities may include: 1) studies relating to management, operation, capital requirements, and economic feasibility of transit projects; 2) preparation of engineering and architectural surveys, plans, and specifications; 3) evaluation of previously funded projects; 4) similar activities preliminary to the construction of, or improved operation of mass transportation systems, facilities, or equipment. Section 8 funds are generally available to transit operators and to regional and metropolitan planning agencies.

AVAILABILITY OF SECTION 8/9 REPORTS

The Section 8/9 technical reports that are listed are not available from the National Technical Information Service (NTIS). Loan copies have been deposited with the TRISNET Regional Centers at the following Libraries:

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Institute of Transportation Studies Library
University of California at Berkeley
412 McLaughlin Hall
Berkeley, California 94720
Telephone: (415) 642-3604

CONNECTICUT

TRANS PLAN. Capitol Region Transportation Plan 1995.
Volume 1: Long-Range Plan Summary.
DeLeuw, Cather & Company. December 1980, CT-09-0003.
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DeLeuw, Cather & Company. 1980, CT-09-0003.
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Volume 3: Policy and Public Participation - Executive Summary.
DeLeuw, Cather & Company. 1980, CT-09-0003.
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An Evaluation of Transportation Service for the Elderly and Handicapped in the Midstate Planning Region.
Midstate Regional Planning Agency. December 1981, CT-09-0020.
CONNECTICUT, Cromwell; Durham; East Hampton; Middlefield; Middletown; and Portland

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Alexandria King Street Metro Station Area Joint Development Program: Summary Report.
Robert J. Harmon & Associates, Inc. August 1980, DC-09-0005.
VIRGINIA, Alexandria

INDIANA

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Wolsfeld, R. P., et al. Fort Wayne Public Transportation Corporation. January 1982, IN-09-0031.
INDIANA, Fort Wayne

Transportation System Management Process Report - A Short Range Plan for the Indianapolis Region.
Indiana Department of Metropolitan Development, Division of Planning and Zoning. August 1981, IN-09-0023.
INDIANA, Indianapolis

INTERSTATE

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PAF Associates, Inc. February 1981, IT-09-0058/89.
NEW JERSEY; NEW YORK

Reduction of PATH Wheel Wear and Wheel Noise. Phase 2: Analysis and Test. Task 2 - Defects Analysis. Interim Report.
Guha, D. Port Authority of New York & New Jersey. January 1981, IT-09-0058/89.
NEW JERSEY; NEW YORK

Reduction of PATH Wheel Wear and Wheel Noise. Phase 2: Analysis and Test. Task 3 - Rail Lubrication Tests. Volume 1: Texaco 904 Grease and Water. Interim Report.
Patel, R. Port Authority of New York & New Jersey. October 1981, IT-09-0058-89.
NEW JERSEY; NEW YORK

Reduction of PATH Wheel Wear and Wheel Noise. Phase 2: Analysis and Test. Task 3 - Rail Lubrication Tests. Volume 2: ROYCO 495 Grease. Interim Report.
Patel, A. R. Port Authority of New York & New Jersey. October 1981, IT-09-0058/89.

Reduction of PATH Wheel Wear and Wheel Noise. Phase 2: Analysis and Test. Task 4 - Wheel Squeal Assessment. Interim Report.
Lin, P. Port Authority of New York & New Jersey. June 1980, IT-09-0058/89.
NEW JERSEY; NEW YORK

Reduction of PATH Wheel Wear and Wheel Noise. Phase 2: Analysis and Test. Task 5 - Flat Wheel Monitoring System. Interim Report.
Chang, T. M. Port Authority of New York & New Jersey. May 1979, IT-09-0058/89.
NEW JERSEY; NEW YORK

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Chang, T. M. Port Authority of New York & New Jersey. December 1980, IT-09-0058/89.
NEW JERSEY; NEW YORK

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Chang, T. M. Port Authority of New York & New Jersey. May 1981, IT-09-0058/89.
NEW JERSEY; NEW YORK

Reduction of PATH Wheel Wear and Wheel Noise. Phase 2: Analysis and Test. Task 8 - Test Wheels. Interim Report.
Guha, D. Port Authority of New York & New Jersey. October 1981, IT-09-0058/89.
NEW JERSEY; NEW YORK

Reduction of PATH Wheel Wear and Wheel Noise. Phase 2: Analysis and Test. Task 9 - Final Report.
Marshall, R. F. and M. Yontar. Port Authority of New York & New Jersey. October 1981, IT-09-0058/89.
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Energy Contingency Plan on Transportation for the Lafayette Metropolitan Area.
Lafayette Regional Planning Commission. June 1981, LA-09-0048.
LOUISIANA, Lafayette

MASSACHUSETTS

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Norman A. Abend. January 1981, MA-09-9001.
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NEW JERSEY

Coordinating Transportation Services in Burlington County, New Jersey. Executive Summary and Final Report.
Institute of Public Administration. June 1981, PA-09-0050.
NEW JERSEY, Burlington County

Gloucester County Transportation Coordination Program - Phase I.
Gloucester County Planning Department. January 1982, PA-09-0080.
NEW JERSEY, Gloucester County

Middlesex County Elderly/Handicapped Transportation Development Plan.
Middlesex County Planning Board. No date shown, NY-09-0046.
NEW JERSEY, Middlesex County

See also INTERSTATE - "Reduction of PATH Wheel Wear . . ."

NEW MEXICO

Native American Transportation Study: Assessment of the Current Conditions and Presentation of Possible Improvements of the Transportation Delivery System.
Emin, S. L. The University of New Mexico, Institute for Applied Research Services. January 1982, NM-09-8004.
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NEW YORK

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Middlesex County Planning Board. No date shown, NY-09-0046.
NEW JERSEY, Middlesex County

See also NEW JERSEY - "Reduction of PATH Wheel Wear . . ."

OKLAHOMA

Long Range Study for the Central Oklahoma Transportation & Parking Authority, Oklahoma City, Oklahoma.
ATE Management & Service Company, Inc. March 1981, OK-09-8003.
OKLAHOMA, Oklahoma City

PENNSYLVANIA

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Carter/Goble Associates, Inc. April 1981, PA-09-0050.
PENNSYLVANIA, Bucks County

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Kopple, Sheward & Day. October 1981, PA-09-0050.
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Route Analysis Study - SEPTA Project 2052 - Phase 1, Preliminary Report.
Southeastern Pennsylvania Transportation Authority. November 1980, PA-09-0050.
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Route Analysis Study - SEPTA Project 2052 - Supplemental Report.
Southeastern Pennsylvania Transportation Authority. November 1980, PA-09-0050.
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Short-Range Transit Development Plan, Erie, Pennsylvania.
Barton-Aschman Associates, Inc. December 1981, PA-09-0076.
PENNSYLVANIA, Erie

PUERTO RICO

Level of Service Rendered by "Publico" Cars and Development of an Improvement Plan for the Service for the Metropolitan Area of Caguas.
Commonwealth of Puerto Rico, Department of Transportation and Public Works. April 1981, PR-09-0005.
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Matta, M. C. and E. G. Amador. Mayaguez, 32. July 1980, PR-09-0008.
PUERTO RICO, San Juan Metropolitan Area

TEXAS

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Barton-Aschman Associates, Inc. October 1981, TX-09-0094.
TEXAS, Brownsville

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Texas A&M University System, Texas Transportation Institute. July 1981, TX-09-8006.
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Guidelines for Estimating Park-and-Ride Demand. Summary Report 1064-1F(S).
Texas A&M University System, Texas Transportation Institute. July 1981, TX-09-8006.
TEXAS

A Survey of Mobility Impaired Residents of Bexar County, Texas - 1980.
Transportation Coordination Team of the San Antonio-Bexar County Metropolitan Planning Organization (MPO). June 1981, TX-09-0128.
TEXAS, Bexar County
TEXAS, San Antonio

VIRGINIA

Alexandria King Street Metro Station Area Joint Development Program: Summary Report.
Robert J. Harmon & Associates, Inc. August 1980, DC-09-0005.
VIRGINIA, Alexandria

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Evaluation of Specialized Transportation Systems for the Elderly and Handicapped in Dane County.
University of Wisconsin at Madison, Department of Civil & Environmental Engineering. June 1981, WI-09-0029.
WISCONSIN, Dane County

UMTA REGIONS AND REGIONAL OFFICES, 1981

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INTRODUCTION

The **Urban Mass Transportation Abstracts** is published bi-monthly by the Transit Research Information Center (TRIC) of the Urban Mass Transportation Administration (UMTA). It contains abstracts of the results of the Research, Development and Demonstrations, Technical Studies, and University Research projects (Sections 6, 8/9, and 11 of the Urban Mass Transportation Act of 1964, as amended) sponsored by UMTA. The bi-monthly Abstracts are arranged into 17 subject classifications, and within each classification, the arrangement is by title. Reports listed within the Abstracts are available from the National Technical Information Service (NTIS). Order and loan information is provided at the end of each issue. Each abstract shown in this report provides information on the report title, the personal and organizational author(s), source of UMTA funding, date of publication, the NTIS order number, and the NTIS price code. A cumulative Retrieval Term Index will appear at the end of every third issue of the bi-monthly Abstracts. In addition, the bi-monthly Abstracts also include a list of recent Section 8/9 Technical Studies acquisitions. The Section 8/9 reports are arranged by states. These reports are not available from NTIS. Loan copies have been deposited with the TRISNET Regional Centers. Questions and comments concerning these publications or the reports cited within them should be addressed to: U.S. Department of Transportation, Urban Mass Transportation Administration, Information Services, Room 6432, 400 Seventh Street, S.W., Washington, D.C. 20590, (202) 426-9157.

UMTA's annual volume, **Urban Mass Transportation Abstracts**, has been discontinued; it has been incorporated into the UMTRIS (Urban Mass Transportation Research Information Service) data base. UMTRIS was developed in 1981 within the National Research Council, Transportation Research Board (TRB), under contract to the Urban Mass Transportation Administration (UMTA). The UMTRIS computerized data system incorporates information on planning, designing, maintaining, operating, managing and financing all modes of public transit including bus, trolley bus, light and heavy rail, advanced guideway systems, taxi and vanpool services, ferries, and local air service. The first Bibliography (in two volumes) produced by UMTRIS has been published; it contains 7064 citations and appropriate indexing for citations added to the Transportation Research Information Service (TRIS) data base between 1974 and 1980. Citations include technical reports, journal articles, handbooks, statistical sources, computer programs, and other information sources from both U.S. and international sources. **Volume 1: Abstracts** contains the citations arranged in 28 categories. **Volume 2: Index** contains more than 3400 subject terms used for the indexing along with appropriate cross references to citations to Volume 1. The Bibliography (in two volumes) is titled **Urban Mass Transportation Abstracts-Cumulative Bibliography 1974-1980** and has been distributed by the Transportation Research Board, 2101 Constitution Avenue, N.W., Washington, DC 20418.

UMTA ABSTRACTS SUBJECT CLASSIFICATION

01. Conventional Transportation Services

02. Center City/Traffic Restraints

03. Energy and Environment

04. Fares/Pricing and Service Innovations

05. Financing

06. Land Use

07. Non-Urban and Low-Density Area Transportation

08. Paratransit Systems and Services

09. Planning, Policy and Program Development

10. Political Processes and Legal Affairs

11. Safety/Product Qualification and Security

12. Socioeconomics

13. Technology Development and Deployment

    A. Bus and Paratransit Vehicle Technology
    B. Bus and Paratransit Operational Technology
    C. New Systems and Automation
    D. Rapid Rail Vehicles and Systems
    E. Commuter Rail Vehicles and Systems
    F. Light Rail Vehicles and Systems
    G. Construction/Tunneling Technology

14. Transportation of Disadvantaged/Special-User Groups

15. Transportation/Transit Management

16. Transportation Productivity and Efficiency

17. Urban Goods Movement

UMTA-SPONSORED REPORTS AVAILABLE AT THE NATIONAL TECHNICAL INFORMATION SERVICE

01. CONVENTIONAL TRANSPORTATION SERVICES

A Methodology for Locating and Sizing Transit Fixed Facilities and the Detroit Case Study. Final Report.

Maze, T.H., et al. Wayne State University, College of Engineering.
UMTA-MI-11-0004-82-1, January 1982, 160p.

The objective of this study is to develop and test a model that can be used to determine optimal bus garage capacity allocations on an areawide basis. The research combines a cost estimation method with a traditional operations research cost minimization technique to search out an optimal sizing and locational strategy for new fixed facilities. The methodology developed herein will provide transit planners with tools to test and compare a broad range of possible facility locations and sizing schemes, and with the ability to select the minimum cost facility configuration. This report consists of 5 chapters. Chapter 1 discusses bus garage location problem and the study objectives; Chapter 2 presents a literature review that includes the mathematical formulations of various location models and a review of 6 garage location studies conducted by different operating agencies in the U.S.; Chapter 3 develops a model for locating and sizing bus garages and discusses two types of solution strategies; Chapter 4 presents the application of the model to a Detroit metropolitan area transit system; and Chapter 5 includes findings, conclusions, and recommendations. The study shows that the model developed efficiently locates bus garages on a transit systemwide basis and allocates buses to the garage located given: the cost parameters associated with the operation of bus garages, a list of candidate garages and their capacities. The study also shows the model sensitive to changes in cost parameters.

NTIS No. PB 82-179391 **Price A08**

02. CENTER CITY/TRAFFIC RESTRAINTS

CBD Fare-Free Transit in Albany, New York.
Final Report.

Atherton, T.J., and E.S. Eder. Cambridge Systematics, Inc., under contract to Transportation Systems Center. UMTA-NY-06-0064-81-1, December 1981, 179p.

This report presents an evaluation of the impacts associated with the implementation of fare-free transit service in the Central Business District (CBD) of Albany, New York. The Albany demonstration began in November 1978; fares were eliminated for trips within the two-thirds square mile fare-free zone during off-peak hours on weekdays and from 9 AM to 5 PM on Saturdays. The local objectives for this evaluation were: revitalization of the downtown areas; reduced traffic congestion; increased fare-paying patronage; and improved public image of public transportation. Data collection involved surveys administered to population groups that included bus patrons traveling within the CBD, downtown employees and residents, areawide residents, and patrons of downtown stores and restaurants. After fares were eliminated, transit ridership within the downtown area tripled on weekdays and increased by a factor of five on Saturdays. Increases were attributed to shifts in travel mode rather than induced travel. This report contains survey administration and questionnaires, a bibliography, and numerous charts depicting travel behavior, ridership characteristics, and CDTA service.

NTIS No. PB 82-185034 **Price A09**

03. ENERGY AND ENVIRONMENT

A Computer Program (HEVSIM) for Heavy Duty Vehicle Fuel Economy and Performance Simulation.
Volume I: Description and Analysis.

Buck, R. U.S. Department of Transportation, National Highway Traffic Safety Administration. UMTA-MA-06-0119-81-1, September 1981, 26p (3 vols).

This 3-volume study describes the vehicle performance simulation computer program, HEVSIM, that was developed at the Transportation Systems Center. HEVSIM is a numerical vehicle performance simulator that can determine the fuel economy and performance of a specified motor vehicle as it executes a given driving schedule. The program is versatile in that it is capable of simulating buses and trucks while maintaining consistency of input data format and operating procedures. Simulation exercises may be conducted from a remote terminal interactively or in batch; alternatively, the program may be submitted in batch via a card deck. HEVSIM provides the user with a convenient way to evaluate the individual vehicle components (engine, torque converter, drag coefficient, weight, etc.) and to determine their effect on the fuel consumption of the vehicle. Detailed analysis and monitoring, both quantitative and qualitative, of the variously proposed driving schedules may be made. Volume 1 provides a description of the numerical approach and equations. Volume 2 is a user's manual describing how to prepare data input and execute the program. Sample cases have been included to illustrate the various simulation methods available and the most frequently used HEVSIM options. Volume 3 describes the computer program HEVSIM. It includes appendices that list the HEVSIM program, sample part data, and some typical outputs and updated nomenclature.

NTIS No. PB 82-163759 **Price A02**
SET OF 3 PB 82-163742 **Price E14**

A Computer Program (HEVSIM) for Heavy Duty Vehicle Fuel Economy and Performance Simulation. Volume 2: Users' Manual.

Buck, R. U.S. Department of Transportation, National Highway Traffic Safety Administration. UMTA-MA-06-0119-81-2, September 1981, 78p (3 vols).

See abstract cited earlier (p. 17, 03).

NTIS No. PB 82-163767 **Price A05**

A Computer Program (HEVSIM) for Heavy Duty Vehicle Fuel Economy and Performance Simulation. Volume 3: Appendices A Through F.

Buck, R. U.S. Department of Transportation, National Highway Traffic Safety Administration. UMTA-MA-06-0119-81-3, September 1981, 320p (3 vols).

See abstract cited earlier (p. 17, 03).

NTIS No. PB 82-163775 **Price A14**

A Strategic Perspective on Public Transportation in a Time of Uncertain Petroleum Supply. Final Report.

Bruck, H.W., et al. University of California-Berkeley, Institute of Transportation Studies. UMTA-CA-11-0021-82-1, June 1981, 115p.

Urban transportation in general and demand for transit services specifically, will, during the coming two decades, be impacted significantly by the conditions of world-wide petroleum availability. This study focuses on a strategic analysis of the petroleum situation and how it will affect travel behavior and public transportation in general. Scenarios reflecting the manner in which the petroleum situation is most likely to evolve and affect urban public transportation during the coming twenty years are developed. Examination of the factors affecting petroleum supply indicates that pricing of petroleum fuel and timing of implementation of substitute technologies are likely to be the critical determinates of fuel availability. Five scenarios representing alternate possible directions of development of the petroleum situation are presented in this report. Analysis of the consequences of the situations described in each, points to the likelihood of reduced travel in the remainder of the century, gradual increase in mass transportation use except in supply disruption or major price shock situations. If these eventualities should occur, transit use is likely to increase greatly and rising transit fares will offset the trend toward ridership increases to an extent. A number of recommendations to UMTA were derived from this study.

NTIS No. PB 82-176918 **Price A06**

Transportation During the Next Energy Crisis: The Special Problems of Small Urban Areas. Executive Summary.

Crowell, W., A. Shapiro, and W. McShane. Polytechnic Institute of New York, Transportation Training & Research Center. UMTA-NY-11-0023-81-5, June 1981, 28p (2 rpts).

This report focuses on the specific issue of transportation contingency plans for petroleum shortages, namely, on the need for and methods of developing such plans for small urban areas (less than 50,000 population). The purpose of this study is to develop methods to assist small urban areas in the planning, design, and implementation of transportation energy contingency

plans for their areas. Travel characteristics in such areas are identified and categorized by the origin-destination patterns, trip purposes, and modes used. The types of mobility problems caused by petroleum shortfalls are discussed along with the range of existing government responses to such shortages. In this report, the nature of federal and state contingency responsibilities are established, basic local contingency plan needs are assessed, and potential strategies are analyzed according to a consistent set of criteria (financing, timeframe, institutional problems, targeted mobility needs, special strategy-specific problems). This report provides conclusions and recommendations for the role of local governments and the private sector in developing and implementing such plans. The appendices in this report are: A. References; B. Issues Associated with the Use of School Buses for Emergency Local Transportation Services; and C. Energy Contingency Planning Guidebook for Local Officials, Citizens, and Interest Groups.

NTIS No. PB 82-179425 **Price A03**

Transportation During the Next Energy Crisis: The Special Problems of Small Urban Areas. Final Report.

Crowell, W., A. Shapiro, and W. McShane. Polytechnic Institute of New York, Transportation Training & Research Center. UMTA-NY-11-0023-81-6, June 1981, 86p (2 rpts).

See abstract cited above.

NTIS No. PB 82-179433 **Price A05**

04. FARES/PRICING AND SERVICE INNOVATIONS

CBD Fare-Free Transit in Albany, New York. Final Report.

Atherton, T.J., and E.S. Eder. Cambridge Systematics, Inc., under contract to Transportation Systems Center. UMTA-NY-06-0064-81-1, December 1981, 179p.

See abstract cited earlier (p. 17, 02).

NTIS No. PB 82-185034 **Price A09**

05. FINANCING

Equity in Transit Finance: A Quantitative Assessment of the Impacts of Transit Subsidies on Low-Income and Minority Groups. Final Report.

Pucher, J., et al. Rutgers University, Department of Urban Planning. UMTA-NJ-11-0010-82-1, November 1981, 95p.

The purpose of this study is to examine the degree to which the benefits of transit subsidy programs accrue to low-income users and the extent to which low-income households ultimately pay the tax costs of these programs. Decomposition of user benefits is achieved through analysis of the income distribution of the riders of each of the various modes of transit services and the degree to which each type of transit service is subsidized. Variations among transit modes (bus, subway, and commuter rail) as well as within each mode (by route, by time of day, and by trip distance) are examined.

05. FINANCING

The incidence of tax costs is estimated by determining the mix of tax mechanisms used to finance transit subsidies and the percentage contribution from each level of government. Several alternative tax distributions are estimated, incorporating a wide range of underlying incidence assumptions and three alternative indices of distribution. The analysis presents the results of nationwide aggregate analysis and case study analysis of transit finance in six metropolitan areas. The results of the nationwide analysis indicate that the transit subsidy program has redistributed income from high-income households. This report contains a list of references and charts that depict the distribution of state and local tax burdens on operating subsidies, net benefits of operating subsidies, etc.

NTIS No. PB 82-158106 **Price A05**

07. NON-URBAN AND LOW-DENSITY AREA TRANSPORTATION

Transportation During the Next Energy Crisis: The Special Problems of Small Urban Areas. Executive Summary.

Crowell, W., A. Shapiro, and W. McShane. Polytechnic Institute of New York, Transportation Training & Research Center. UMTA-NY-11-0023-81-5, June 1981, 28p (2rpts).

See abstract cited earlier (p. 18, 03).

NTIS No. PB 82-179425 **Price A03**

Transportation During the Next Energy Crisis: The Special Problems of Small Urban Areas. Final Report.

Crowell, W., A. Shapiro, and W. McShane. Polytechnic Institute of New York, Transportation Training & Research Center. UMTA-NY-11-0023-81-6, June 1981, 86p (2 rpts).

See abstract cited earlier (p. 18, 03).

NTIS No. PB 82-179433 **Price A05**

09. PLANNING, POLICY AND PROGRAM DEVELOPMENT

Transit Marketing in Pennsylvania: A Handbook of Effective Transit Marketing Aids.

Peter Muller-Munk Associates, Division of Wilbur Smith & Associates. UMTA-PA-09-8003-81-1, July 1981, 115p.

To assist transit operators interested in promotion techniques that can increase ridership and revenues on their systems, UMTA has been funding through the Section 8 Technical Studies Program local efforts to develop and implement effective promotion techniques. This handbook has been prepared as one of several projects being undertaken by the Pennsylvania Department of Transportation as part of the State Management Assistance Program. The handbook is targeted toward the smaller transit systems that generally have more limited resources for marketing efforts. Basically, this handbook focuses upon actual examples of marketing aids that help to close the gap between theory and practical applications. The purpose of this project and handbook is to satisfy the need for a precise, comprehensive information

exchange on the availability and usage of transit marketing items in Pennsylvania. The aids and promotions are evaluated as to their perceived benefits and effectiveness. In addition to their value as examples of marketing aids and programs that have been successful and effective, the evaluations suggest application and developmental guidelines for future use of marketing aids. The authors state that the effective promotion techniques documented in this report can be used by transit operators in Pennsylvania and elsewhere.

NTIS No. PB 82-173899 **Price A06**

12. SOCIOECONOMICS

Baseline Conditions Report for a Socio-Economic Impact Assessment of the Los Angeles Automatic Vehicle Monitoring Demonstration. Final Report.

Juarez, E., D. Daetz, and M. Bebendorf. Juarez & Associates, Inc., and SYSTAN, Inc. UMTA-CA-06-0236-82-1, May 1981, 222p.

This report is a quantitative and qualitative presentation of baseline conditions for UMTA's demonstration of a fully functional automatic vehicle monitoring (AVM) system in Los Angeles, California. The report is descriptive and does not contain conclusions; it is intended to serve as an interim document. The final impact assessment report of the Los Angeles AVM demonstration is scheduled for completion in November 1981. AVM is an electronic system of monitoring the location and status of transit vehicles operating on city streets. AVM is expected to result in better service to passengers and reduce operating costs. AVM promotes greater passenger and operator security since a driver can instantly notify the control center of an emergency and the police can be alerted and given the exact location of the vehicle. The Los Angeles AVM demonstration involves 200 buses and 12 random route service vehicles operated by the Southern California Rapid Transit District and consists of 3 stages. During Stage 1, baseline data was collected and formed the basis of this report. During Stage 2, "start up" dispatchers became active users of the AVM system for both monitoring AVM routes and real-time control of AVM routes. Stage 3 is an operational test period. The evaluation of the Los Angeles AVM includes a before and after assessment of the socioeconomic impacts of the demonstration focusing on the changes that affect or are perceived by the public and transit operator. Issues under investigation are the AVM implementation process, level of service impacts, demand response, and the economic and efficiency impacts of the system. The intent of this evaluation is to develop findings transferable to other transit properties considering AVM. The baseline data reported here will be compared with data collected during Stage 3 of the demonstration to complete the before and after assessment of social and economic impacts of AVM.

NTIS No. PB 82-170192 **Price A10**

13. TECHNOLOGY DEVELOPMENT AND DEPLOYMENT

Dictionary of Public Transport.
International Transit Handbook.

Bamberg, W., et al. N.D. Lea Transportation Research Corporation. UMTA-AL-06-0006-82-1, 1981, 313p. Available from N.D. Lea Transportation Research Corporation, c/o GAM Printers, P.O. Box 353, Sterling, Virginia 22110.

The Dictionary of Public Transport contains over 2,000 transit terms and definitions. It is a trilingual transit dictionary and is divided into 3 sections. The first section contains the English entries in alphabetical order, each followed by its equivalent in German and in French and a definition in English. The second section contains the German entries with their English and French equivalents and definitions in German. The third section lists the French entries with their English and German equivalents. Each of the three parts stand on its own and can be used independently of the others. The purpose of the trilingual dictionary is not only to provide definitions, but to select among the terms currently in use, with the goal of encouraging standard usage throughout the industry worldwide. The authority of this dictionary as a standard is greatly enhanced by the endorsement of the International Union of Public Transport (UTIP). This new reference work represents the combined efforts of transit experts from the U.S.A., Canada, England, Germany, Belgium, and France. Funding of the work was provided by the U.S. Department of Transportation, Urban Mass Transportation Administration; Transport Canada; and the Forderergesellschaft fur Systeme des Nahverkehrs e.V., West Germany.

Service and Methods Demonstrations Program Summary Report.

Spear, B.D., et al. U.S. Department of Transportation, Transportation Systems Center. UMTA-MA-06-0049-81-11, December 1981, 53p.

This report summarizes the activities and accomplishments of the UMTA Service and Methods Demonstrations Program for FY 1979, 1980, and 1981. Overall program objectives, current activities, and future directions are briefly described. Current demonstration projects are identified in each of the four major program areas of conventional transit service innovations, pricing and service innovations, paratransit services, and transportation services for special user groups. In addition, ongoing program activities in the areas of evaluation methodology and information dissemination are discussed. This report also presents major new findings concerning the costs, impacts, and implementation considerations of the following innovative transportation service concepts: systemwide transit route restructuring, transit transfer policies, articulated bus, auto-restricted zones, transit fare prepayment strategies, free-fare transit, vanpooling, transportation brokerage, taxicab regulatory revisions, high-speed waterborne transit service, bicycle-transit integration, wheelchair accessible fixed-route bus service, door-to-door transit service for special users, user-side subsidies, coordination of social service agency transportation, special purpose transit services for innercity residents, and rural transportation.

NTIS No. PB 82-178633 **Price A04**

Service and Methods Demonstrations Program Report.

Spear, B.D., et al. U.S. Department of Transportation, Transportation Systems Center. UMTA-MA-06-0049-81-12, December 1981, 280p.

See abstract cited above.

NTIS No. PB 82-180050 **Price A13**

13B. BUS AND PARATRANSIT OPERATIONAL TECHNOLOGY

Baseline Conditions Report for a Socio-Economic Impact Assessment of the Los Angeles Automatic Vehicle Monitoring Demonstration. Final Report.

Juarez, E., D. Daetz, and M. Bebendorf. Juarez & Associates, Inc., and SYSTAN, Inc. UMTA-CA-06-0236-82-1, May 1981, 222p.

See abstract cited earlier (p. 21, 12).

NTIS No. PB 82-170192 **Price A10**

A Computer Program (HEVSIM) for Heavy Duty Vehicle Fuel Economy and Performance Simulation. Volume 1: Description and Analysis.

Buck, R. U.S. Department of Transportation, National Highway Traffic Safety Administration. UMTA-MA-06-0119-81-1, September 1981, 26p (3 vols).

See abstract cited earlier (p. 17, 03).

NTIS No. PB 82-163759 **Price A02**
SET OF 3 PB 82-163742 **Price E14**

13C. NEW SYSTEMS AND AUTOMATION

Downtown People Mover (DPM) Winterization Test Demonstration: Otis Elevator. Final Report.

Hewitt, M.A. Otis Elevator Company, Transportation Technology Division, under contract to Transportation Systems Center. UMTA-MA-06-0081-81-3, January 1982, 206p.

The Otis Elevator Company Transportation Technology Division (OTIS-TTD) Downtown People Mover (DPM) Winterization Test Demonstration Final Report covers the 1978-79 and 1979-80 winter periods. Tests were performed at the Otis test track in Denver, Colorado. The two vehicles used during the winter testing program were 1) the Duke University Medical Center vehicle, and 2) a test vehicle with same performance as the Duke vehicle. Both are HOVAIR supported, linear induction motor driven, automated vehicles. This report presents the results, conclusions and recommendations of the winter operation capabilities of the OTIS-TTD HOVAIR vehicle and DPM equipment. The basic purpose of this DPM test and demonstration program was to determine the capabilities or the limitations of the OTIS-TTD system and related DPM hardware, specifically in areas of power collection and distribution, propulsion, braking and guidance, vehicle longitudinal control, vehicle switching, and overall satisfactory system performance during severe winter weather conditions. This program also provides hardware requirements for the removal of snow and ice accumulations from the vehicle and guideway. Results of this test program have shown that the OTIS-TTD HOVAIR vehicle can be operated in extreme winter climates with little modification to the system.

NTIS No. PB 82-185752 **Price A10**

13C. NEW SYSTEMS AND AUTOMATION

Downtown People Mover (DPM) Winterization Test Demonstration: Westinghouse. Final Report.

Boehmer, L.S., and A.P. Holbrook. Westinghouse Electric Corporation, Transportation Division, under contract to Transportation Systems Center. UMTA-MA-06-0081-81-2, January 1982, 175p.

The Westinghouse Downtown People Mover (DPM) Winterization Test Demonstration (WTD) Final Report covers the 1978-79 and 1979-80 winter periods. Tests were performed at the Westinghouse Transportation Division (WTD) test track located in Pittsburgh, Pennsylvania. The tests performed and covered in this document fall into 3 general categories: 1) system start-up at low temperatures; 2) system operational tests in snow; and 3) system operational tests with ice. The objective of the program was to demonstrate that fully automated and simple DPM systems can be a reliable urban transit alternative in severe cold climates. This demonstration was intended to determine the capabilities and limitations of Westinghouse's People Mover through a combination of system and subsystem level testing. The testing included evaluation of the system's traction and propulsion, braking and steering, power collection, vehicle and guideway electronics, switching and overall system performance. A test program incorporating energy management and system operating strategies was developed and documented through flow charts and written test procedures. Results of the program were documented on video tape (see Appendix A) and through photographs. The test program has demonstrated that the WTD system hardware and operating philosophy are directly applicable to the cold weather environments of Northern DPM cities. Product improvements have been performed or are underway to eliminate limitations identified during testing. The WTD system has no other known limitations when applied to a cold weather DPM.

NTIS No. PB 82-189184 **Price A08**

Interim Assessment of the VAL Automated Guideway Transit System. Interim Report.

Anagnostopoulos, G. U.S. Department of Transportation, Transportation Systems Center, et al. UMTA-MA-06-0069-81-3, November 1981, 200p.

This report describes an interim assessment of the VAL (Vehicules Automatiques Legers or Light Automated Vehicle) AGT system that is currently under construction in Lille, France, and is to become fully operational in December 1983. This report contains a technical description and performance data resulting from a demonstration test program performed concurrently in August 1980. This assessment was performed in accordance with the Memorandum of Understanding between the French Ministry of Transportation and the U.S. Department of Transportation. VAL is the first driverless AGT urban system application in France. The system operates at grade, elevated, and in tunnels on an exclusive concrete dual-lane guideway that is 12.7 kilometers long. The configuration of the system is a push-pull loop operating between 17 online stations. VAL has demonstrated that it could achieve high levels of dependability and availability and could perform safely under all perceivable conditions.

NTIS No. PB 82 163783 **Price A09**

13C. NEW SYSTEMS AND AUTOMATION

Los Angeles Downtown People Mover: Handbook on Accessibility for the Elderly and Handicapped. Final Report.

Kaiser Engineers/DMUM. UMTA-CA-09-7003-81-1, November 1980, 306p.

The Los Angeles, California Downtown People Mover (DPM) is a planned deployment of the Automated Guideway Transit Technology (AGTT), and it will be accessible to and usable by elderly and handicapped (E&H) people. The report is a handbook of accessibility guidelines for system planners and designers. It includes the following topics: 1) categorization of the E&H population in terms of functional disability; 2) analysis of potential transit barriers; 3) analysis of proposed job descriptions to determine which disabilities must be accommodated in design of work stations and other employee facilities; 4) review and analysis of federal requirements and other guidelines; 5) summary of the state-of-the-art of accessible designs in nine AGT and heavy rail systems; 6) synthesis of criteria for accessible design from a number of sources; 7) discussion of safety trade-offs and analytic methods; and 8) recommendations of areas for further research.

NTIS No. PB 82-170564 **Price A14**

Transette System Application Study.
Final Report.

Chung, C.C. The MITRE Corporation, Metrek Division.
UMTA-VA-06-0056-81-2, January 1982, 69p.

The Transette Automated Guideway Transit (AGT) system is an innovative, relatively low-cost prototype system that has been underway since 1972. The developer, Transette, Inc., is currently performing tests and engineering developments on a prototype system on the campus of the Georgia Institute of Technology, Atlanta, Georgia. The two study sites near downtown Atlanta were selected for cost and level of service analyses. This study was undertaken to determine the near-term application potential of the Transette system in urban areas and to recommend technological improvement areas for Transette. Cost and level of service comparisons between Transette, bus, and walking were conducted. The Transette prototype system currently comprises 900 single lane meters of guideway, two online stations, one off-line station, a control center, and two four passenger vehicles. The maximum speed on the main drive belt is 15 mph. Table ES-1 in the report summarizes the basic system and operating characteristics of the Transette system prototype.

NTIS No. PB 82-170226 **Price A04**

13D. RAPID RAIL VEHICLES AND SYSTEMS

Improving Communications with the Visually Impaired in Rail Rapid Transit Systems. Volume 1: Solutions for Problems of Visually Impaired Users of Rail Rapid Transit.

Bentzen, B.L., R.M. Jackson, and A.F. Peck. Boston College, Division of Special Education & Rehabilitation. UMTA-MA-11-0036-81-1, August 1981, 273p (2 vols).

The purpose of this two-volume study was 1) to analyze the problems visually impaired riders encounter on rapid rail systems; 2) to identify strategies that remedy these problems; and 3) to suggest methods for communicating with the visually impaired. Results of the study are presented in the following areas: 1) background information about visually impaired persons; 2) problems in accessibility to rail rapid transit; 3) suggested methods for improving communications; and 4) estimated reactions to the implementation of solutions. Suggested methods for improving communications fall within the following categories: 1) signage and other print information; 2) graphic information; 3) auditory information; 4) textural information; 5) special equipment designs; 6) architectural designs; and 7) operating procedures. Suggestions from these categories are presented according to a sequential "trip" format in which a hypothetical route from system entrance to system exit is traced.

NTIS No. PB 82-165564 **Price A12**

Improving Communications with the Visually Impaired in Rail Rapid Transit Systems.
Volume 2: Information about Visual Impairment for Architects and Transit Planners.

Bentzen, B.L., R.M. Jackson, and A.F. Peck. Boston College, Division of Special Education & Rehabilitation. UMTA-MA-11-0036-81-2, August 1981, 63p (2 vols).

This document contains a collection of reports that should be of help to architects and transit planners who are designing systems free of barriers to the visually handicapped. The following reports are included in this document: 1) Annotated Bibliography of Selected References on the Visually Impaired; 2) Annotated Bibliograpy on the Use of Transit by the Visually Impaired; 3) The Incidence and Demography of Visual Impairment in the U.S.; 4) Considerations in the Design of Information Systems for Communications with the Visually Impaired; and 5) Glossary of Definitions Related to Visual Impairment.

NTIS No. PB 82-165572 **Price A04**

Transportation Test Center Rail Transit Services.
User's Guide.

Torpey, J., M. Ruggles, and P. Spencer. The Onyx Corporation.
UMTA-MD-06-0032-81-1, May 1981, 34p.

The urban rail transit test facilities at the Transportation Test Center (TTC) provide for test and evaluation of urban rail vehicles, subsystems, track and structural components in an environment both safe and free from the scheduling constraints imposed by revenue service operations. This document describes the facilities and technical expertise available to transit authorities and other potential users of TTC located in Pueblo, Colorado. Users are provided information concerning test program initiation, test track engineering, and cost sharing with the federal government. Railcars that have been successfully tested at TTC include: San Francisco and Boston light rail vehicles; Washington Metropolitan Area Transit Authority (WMATA) cars; Massachusetts Bay Transportation Authority (MBTA) cars; and the Metropolitan Atlanta Rapid Transit Authority (MARTA) cars.

NTIS No. PB 82-176975 **Price A03**

13D. RAPID RAIL VEHICLES AND SYSTEMS

U.S. Transit Track Restraining Rail.
Volume 1: Study of Requirements and Practices.

Cunney, E.G., and Ta-Lun Yang. ENSCO, Inc., under contract to the Transportation Systems Center. UMTA-MA-06-0100-81-6, December 1981, 150p (2 vols).

This 2-volume study is sponsored by UMTA's Office of Rail and Construction Technology and is a part of a program to assist transit properties in the development of track. The intent of this study of restraining rails in transit track is to assist in the analysis, design, and maintenance and operation of transit track, to compile guidelines, and to devise concepts for possible improvements. Volume 1 describes current practices in the use of restraining rails and provides data from rail lubrication tests. It evaluates the benefits of alternative practices, presents concepts for advanced designs, discusses simplified analysis of costs and benefits of restraining rail installations, recommends the design and fabrication of modifications and new concepts, and recommends tests to obtain additional information for improvements in track adjustment and practices in order to reduce rail wear.

NTIS No. PB 82-176652 **Price A07**

U.S. Transit Track Restraining Rail.
Volume 2: Guidelines.

Cunney, E.G., and Ta-Lun Yang. ENSCO, Inc., under contract to the Transportation Systems Center. UMTA-MA-06-0100-81-7, December 1981, 36p (2 vols).

Volume 2 of this study contains guidelines derived from the study of transit restraining rail requirements and practices, and includes consideration of practices in the railroad industry and other industries. It also includes recommended standards and practices for design, installation, maintenance and inspection, and suggestions for the evaluation of requirements for restraining rail installations. This report also presents descriptions and limits for measurable conditions, such as gage and flangeway width, and descriptions of conditions that normally are not measurable.

NTIS No. PB 82-176660 **Price A03**

13E. COMMUTER RAIL VEHICLES AND SYSTEMS

Propulsion Alternatives for Suburban Rail Corridors.
Final Report.

Ablamsky, R.A., and C.M. King. Tri-State Regional Planning Commission. UMTA-IT-09-0069-81-1, September 1981, 137p.

This study examined 5 propulsion alternatives to extending existing capital-intensive electrification and using additional electric multiple-unit (MU) cars. The objectives of this study were: 1) to identify alternatives to existing electric MU cars and diesel locomotive hauled trains used for commuter rail service in the New York-New Jersey-Connecticut region; 2) to evaluate each alternative in terms of performance capability, reliability, and other technical factors or constraints; 3) to develop capital and operating cost data for each alternative and type of electrification; and 4) to compare each baseline electrification system with feasible propulsion alternatives. The following propulsion alternatives were compared:

dual-powered locomotive, alternating current locomotive, direct current locomotive, and dual-powered MU car. A standardized scenario was established for both technical and cost comparisons. It assumed a double track line of 50 miles, 30 of which were electrified. There were 9 stations 2.2 miles apart; 400 daily one-way riders per route mile; 120 seats/car single level and 200 seats/car bi-level with 63 single level or 38 bi-level cars. Costs were developed on a 5 car basis. The standardized scenario was also expanded to determine the cost impact of various factors: passenger level, length of electrification extension, and train length. The dual-powered locomotive, diesel-electric/eclectric, was found to be most cost efficient based on the specified scenario and operating parameters.

NTIS No. PB 82-169533 **Price A07**

14. TRANSPORTATION OF DISADVANTAGED/SPECIAL-USER GROUPS

Improving Communications with the Visually Impaired in Rail Rapid Transit Systems. Volume 1: Solutions for Problems of Visually Impaired Users of Rail Rapid Transit.

Bentzen, B.L., R.M. Jackson, and A.F. Peck. Boston College, Division of Special Education & Rehabilitation. UMTA-MA-11-0036-81-1, August 1981, 273p (2 vols).

See abstract cited earlier (pp. 25-26, 13D).

NTIS No. PB 82-165564 **Price A12**

Improving Communications with the Visually Impaired in Rail Rapid Transit Systems. Volume 2: Information about Visual Impairment for Architects and Transit Planners.

Bentzen, B.L., R.M. Jackson, and A.F. Peck. Boston College, Division of Special Education & Rehabilitation. UMTA-MA-11-0036-81-2, August 1981, 63p (2 vols).

See abstract cited earlier (pp. 15-26, 13D).

NTIS No. PB 82-165572 **Price A04**

Los Angeles Downtown People Mover: Handbook on Accessibility for the Elderly and Handicapped. Final Report.

Kaiser Engineers/DMUM. UMTA-CA-09-7003-81-1, November 1980, 306p.

See abstract cited earlier (p. 25, 13C).

NTIS No. PB 82-170564 **Price A14**

Ridership Patterns in Transportation Services for the Elderly and Handicapped. Revised Final Report.

Rosenbloom, S., C. Schlessinger, and H. Dittmar. The University of Texas at Austin, Center for Transportation Research. UMTA-TX-11-0011-82-1, September 1981, 306p.

This study is designed to synthesize and assess what is known about the ridership response of target groups like the elderly, handicapped, and low-income groups to the provision of various transportation services and options. The purpose of this work is to help local agencies understand the travel patterns common to clients facing a number of different travel options. This report is organized into 3 parts. Part 1 describes the background of the study, the organization of the work undertaken and analyzes the available literature on special target groups such as the elderly and handicapped. Part 2 describes a comprehensive study of the impact of

14. TRANSPORTATION OF DISADVANTAGED/SPECIAL-USER GROUPS

specialized transportation services provided to the clients of a large social service agency in Austin, Texas. This study generated working hypotheses to test 4 additional case studies, namely: Brockton, Massachusetts; Houston, Texas; and Minneapolis-St. Paul, Minnesota; The report provides descriptions of the 4 case studies as well as general conclusions made about the ridership patterns, trip characteristics, and financial arrangements of these coordination experiences. Part 3 examines the growing body of empirical literature on the experiences of a number of systems providing specialized services to target populations. Using the perspectives and observations first generated in Part 2, the study makes general conclusions about the ridership patterns of similar agency systems in other communities.

NTIS No. PB 82-168808 **Price A14**

15. TRANSPORTATION/TRANSIT MANAGEMENT

A Methodology for Locating and Sizing Transit Fixed Facilities and the Detroit Case Study. Final Report.

Maze, T.H., et al. Wayne State University, College of Engineering. UMTA-MI-11-0004-82-1, January 1982, 160p.

The objective of this study is to develop and test a model that can be used to determine optimal bus garage locations and garage capacity allocations on an areawide basis. The research combines a cost estimation method with a traditional operational research cost minimization technique to search out an optimal sizing and locational strategy for new fixed facilities. The methodology developed herein will provide transit planners with tools to test and compare a broad range of possible facility locations and sizing schemes, and with the ability to select the minimum cost facility configuration. This report consists of 5 chapters. Chapter 1 discusses bus garage location problems and the study objectives; Chapter 2 presents a literature review that includes the mathematical formulations of various location models and a review of 6 garage location studies conducted by different operating agencies in the U.S.; Chapter 3 develops a model for locating and sizing bus garages and discusses two types of solution strategies; Chapter 4 presents the application of the model to a Detroit metropolitan area transit system; and Chapter 5 includes findings, conclusions, and recommendations. The study shows that the model developed efficiently locates bus garages on a transit systemwide basis and allocates buses to the garage located given: the cost parameters associated with the operation of bus garages, a list of candidate garages and their capacities. The study also shows the model sensitive to changes in cost parameters. Recommendations of future studies are included, namely, improvement and development of the model.

NTIS No. PB 82-179391 **Price A08**

Transit Employee Training Project, 1977-1981. Executive Summary.

Bocock, P.W. AFL-CIO Appalachian Council, Inc. UMTA-WV-06-0011-82-1, December 1981, 27p (3 rpts).

15. TRANSPORTATION/TRANSIT MANAGEMENT

This Executive Summary provides a brief overview of the main findings of the Transit Employee Training Program (TETP) final report, and highlights the achievements, issues and problems described in the final report so as to provide the reader with a condensed narrative summary of the TETP as a whole. Each section presents a short digest of the relevant chapters of the final report, followed by an outline of key problems encountered. The goal of the TETP program was to develop, test and evaluate innovative standardized training programs for bus operators and maintenance workers in thirteen Southern and Eastern states. Associated with the project's demonstration component was a training target of 1,800 trainees over its planned lifespan. The project began operations April 1, 1977; it was organized and operated jointly by the Council's Regional Office in Charleston, West Virginia, and its Research Office in Washington, D.C.

NTIS No. PB 82-174012 **Price A03**

Transit Employee Taining Project, 1977-1981.
Volume 1: The Main Report.

Bocock, P.W. AFL-CIO Appalachian Council, Inc. UMTA-WV-06-0011-82-2, December 1981, 135p (3 rpts).

This final report consists of seven chapters: 1) Introduction, 2) Project Objectives, Organization and Administration, 3) Initial Research Program, 4) Bus Operator Training Program, 5) Maintenance Worker Training Program, 6) Project Evaluation Program, and 7) Summary and Conclusions. The author concludes that the trainees and instructors who participated in the TETP activities and labor and management representatives at participating properties were highly satisfied with the program's results.

NTIS No. PB 82-174020 **Price A07**

Transit Employee Training Project, 1977-1981.
Volume 2: Appendices to the Main Report.

Bocock, P.W. AFL-CIO Appalachian Council, Inc. UMTA-WV-06-0011-82-3, December 1981, 261p (3 rpts).

This appendices report 1) lists the names of the project staff, advisory committee, technical group, transit properties surveyed; 2) provides detailed information regarding statement of work, project needs assessment survey, operator training modules, training resources and work force problems, maintenance training, systems support contract, job performance aids and supporting maintenance training materials; and 3) contains numerous charts illustrating instructional materials, etc.

NTIS No. PB 82-174038 **Price A12**

Transit Marketing in Pennsylvania:
A Handbook of Effective Transit Marketing Aids.

Peter Muller-Munk Associates, Division of Wilbur Smith & Associates. UMTA-PA-09-8003-81-1, July 1981, 115p.

See abstract cited earlier (p. 20, 09).

NTIS No. PB 82-173899 **Price A06**

15. TRANSPORTATION/TRANSIT MANAGEMENT - TRANSLATIONS

Health and Health Risks Among City Bus Drivers in West Berlin.
International Translation - German to English.

Insitute for Social Medicine and Epidemiology of the Ministry of Berlin, West Berlin, Germany. Translated by the U.S. Joint Publications Research Service, Arlington, Virginia 22201, UMTA-VA-06-0034-82-3, June 1980, 133p (2 rpts).

This is an evaluation of a cross-sectional study of West Berlin bus drivers and administrative employees. The design of this occupational-medical study was the responsibility of the Berlin Transportation Company's (BWG) Medical Service. It included the medical examination of 811 bus drivers and 417 management employees in such areas as: physical examination, blood pressure, EKGs, x-rays, and analysis of blood. A questionnaire was administered including social circumstances, health behavior, illnesses, drug use, and psychological stresses. A survey of literature on the health-related stress among bus drivers and similar occupational groups forms the first part of this report. Other sections of this report include: 1) Results of the Cross-Sectional Study of BWG Bus Drivers and Administrative Employees; 2) Selection on the Basis of Physical Fitness in the Drivers' Group; 3) Summary of the Results of the Study; and 4) Tables and Charts depicting such items as behavior and health, medical history data, age and work structures, and education. Results indicate that severe occupational stress and its effect on health caused the majority of them (75 percent) to leave their job that the work world and health have on each other, but it also offers good suggestions for preventions and ways in which company doctors can expand their work in this direction. The second part of the project (UMTA-VA-06-0034-82-4) is the ergonomic field study. The field study pursues the objective of analyzing stress and strain in terms of routes, shifts, and specific deploymnet.

REPORT AVAILABILITY: Presently the translation reports are available on loan at the 1) Department of Transportation Library, Washington, DC 20590; 2) Transportation Research Board Library, Washington, DC 20418; and 3) Northwestern University Transportation Library, Evanston, Illinois 60201.

Investigations on the Reduction of Stress of Drivers in Regularly Scheduled Buses in Inner City Traffic.
International Translation - German to English.

Reimann, Jorn. Institute for Occupational Science of Berlin Technical University, West Berlin, Germany. Translated from German to English by the U.S. Joint Publications Research Service, Arlington, Virginia 22201, UMTA-VA-06-0034-82-4, January 1982, 169p (2 rpts).

The Berlin Chamber of Deputies' interest in the health conditions and occupational stress of the drivers of regularly scheduled buses in West Berlin generated this study. The overall project is a cross-sectional study of West Berlin bus drivers and administrative employees. Data was collected exclusively in the area of the Berlin Traffic Enterprises (BVG). The project consists of an occupational-medical study and an ergonomics study. The occupational-medical study included the medical examination of 811 bus drivers and 417 management employees.

This study pursued the objective of analyzing stress-relevant parameters at the work place of the regularly scheduled bus drivers in inner city traffic and of deriving strain interdependencies. It is formulated in terms of a medical premise and is based on a description of the health state and the health selection of bus drivers, with the inclusion of epidemiological comparative data of a collective of management employees of the public service. For areas in which the stress-strain indication supports the medical hypothesis of the "sick bus driver" possible causative criteria are indicated and innovative proposals are presented for their avoidance or reduction. Results indicate that severe occupational stress and its effect on health cause the majority (75 percent) of them to leave their job prematurely. The author states that this study not only contributes to an understanding of the influence that the work world and health have on each other, but it also offers good suggestions for prevention and ways in which company doctors can expand their work in this direction.

REPORT AVAILABILITY: Presently the translation reports are available on loan at the 1) Department of Transportation Library, Washington, DC 20590; 2) Transportation Research Board Library, Washington, DC 20418; and 3) Northwestern University Transportation Library, Evanston, Illinois 60201.

Maladies and Industrial Health of Public Transportation Workers. International Translation - Italian to English.

Berlinguer, G. Italian Institute of Social Medicine, Rome Italy. Translated from Italian to English by the U.S. Joint Publications Research Service, Arlington, Virginia 22201, UMTA-VA-06-0034-82-2, 1962, 112p.

This study reflects the view that the study of the maladies of the professional drivers of public transport vehicles can contribute to the knowledge of the pathology of the drivers of private automobiles—knowledge necessary for the prevention of road accidents as well as for the study of "modern malaria"—that is, people's widespread feeling of discomfort in the modern big city. The 11,000 employees of the public transport company of Rome (ATAC) provides the basis for this research. This report presents: 1) a description of the ATAC company and its personnel; 2) a discussion of worker absenteeism due to sickness and accidents; 3) a discussion of the difficulties, costs, and discomforts occasioned to the employees of ATAC (and the entire Roman population) by the urban traffic situation; 4) a discussion aimed at improving the working conditions, the occupational hygiene, and the health care of the public transportation workers; and 5) a description of measures to modify the present insurance coverage for occupational maladies. This report also provides proposals for further research regarding the health and working environment of the transportation worker.

REPORT AVAILABILITY: Presently the translation reports are available on loan at the 1) Department of Transportation Library, Washington, DC 20590; 2) Transportation Research Board, Washington, DC 20418; and 3) Northwestern University Transportation Library, Evanston, Illinois 60201.

15. TRANSPORTATION/TRANSIT MANAGEMENT - TRANSLATIONS

Study Concerning the Job of Bus Driver in Road System.
Translation - French to English.

Foissin, Dr. B., et al. Regie Autonome Des Transports Parisiens (RATP - Paris Metropolitan Transportation System), Medical Department. Translated by the U.S. Joint Publications Research Service, Arlington, Virginia 2201.
UMTA-VA-06-0034-82-5, October 1978, 15p (2 rpts).

This brief paper is a summarized translation of the job problems of a bus driver employed by the RATP - Paris Metropolitan Transportation System. The paper discusses the research methods used in the study, namely, the specialized medical and technical knowledge required.

REPORT AVAILABILITY: Translation report is available at the U.S. Department of Transportation Library, Washington, DC 20590.

Study Concerning the Job of Bus Driver in Road System:
Appendices. French.

Foissin, Dr. B., et al. Regie Autonome Des Transports Parisiens (RATP - Paris Metropolitan Transportation System), Medical Department.
UMTA-VA-06-0034-82-6, October 1978, 86p (2 rpts).

REPORT AVAILABILITY: This report is available in the French language only at the U.S. Department of Transportation Library, Washington, DC 20590.

Working Environment for Local Transit Personnel in Large and Medium-Size Towns.
International Translation - Swedish to English.

Stockholm University, Psychological Institute, Stockholm, Sweden. Translated by the U.S. Joint Publications Research Service, Arlington, Virginia 22201,
UMTA-VA-06-0034-82-1, October 1980, 121p.

Interest in the working environment of workers in local collective transit was generated at the 1973 Congress of the Swedish Federation of Municipal Workers. This Congress highlighted the disturbing increase in the frequency of worker illness and early pensions. The Congress addressed such working conditions as irregular working hours, sleep and meal problems, increased traffic intensity, increasing violence, and the demand for service. This research began in 1976 on the initiative of the Swedish Association of Municipal Workers and the Swedish Local Transit Association. This report is divided into three separate sections/reports. Section 1 deals with the connection between the content of traffic work, measured primarily in the form of work stress and various forms of stress and ill health. Section 2, on the other hand, is a study of health (sleeplessness, stomach trouble, and exhaustion) and social effects (family life and free time activities). Both sections conclude with a discussion of practical consequences. Section 3 is a summary of the results and conclusions from various parts of the project. Common to sections 1 and 2 is the description of problems in the actual work situation of the local traffic group. This report also includes the theoretical reference framework that serves as the basis for the analysis and the processing of the material.

REPORT AVAILABILITY: Presently the translation reports are available on loan at the 1) Department of Transportation Library, Washington, DC 20590; 2) Transportation Research Board Library, Washington, DC 20418; and Northwestern University Transportation Library, Evanston, Illinois 60201.

REPORT AVAILABILITY

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UMTA SECTION 8/9 TECHNICAL REPORT INDEX
MARCH - APRIL 1982

This Section 8/9 Index is intended to serve as a guide to the technical study reports sponsored by the Urban Mass Transportation Administration of the U.S. Department of Transportation, Washington, D.C., in accordance with Section 8 of the Urban Mass Transportation Act of 1964, as amended.

Section 8 provides for contracts and grants to states and local public agencies for the planning, engineering, designing, and evaluation of urban mass transportation projects; the development of regional transportation plans; and various other technical studies. Section 8 activities may include: 1) studies relating to management, operation, capital requirements, and economic feasibility of transit projects; 2) preparation of engineering and architectural surveys, plans, and specifications; 3) evaluation of previously funded projects; and 4) similar activities preliminary to the construction of or improved operation of mass transportation systems, facilities, or equipment. Section 8 funds are generally available to transit operators and to regional and metropolitan planning agencies.

AVAILABILITY OF SECTION 8/9 REPORTS

These Section 8/9 technical study reports that are listed are not available from the National Technical Information Service (NTIS). Loan copies have been deposited with the TRISNET Regional Centers at the following Libraries:

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Northwestern University
Evanston, Illinois 60201
Telephone: (312) 492-5273

Institute of Transportation Studies Library
University of California-Berkeley
Berkeley, California 94720
Telephone: (415) 642-3604

ARKANSAS

Market Analysis & Feasibility Study for a Multi-Modal Transit Facility. Little Rock, Arkansas.

John A. Castin & Associates Planning Consultants, Little Rock AR, and Stuck, Frier, Lance, Scott, Beisner Inc. Architects, Little Rock AR, in association with Barton Aschman Associates, Inc., Evanston IL, prepared for Metroplan, A Council of Local Governments, September 1981, UMTA-AR-09-0021.

- ARKANSAS, Little Rock

CONNECTICUT

A Transit Marketing Plan for the Valley Transit District.

Keyes Associates, Wethersfield CT, and Alden Design & Advertising, Inc., prepared for the Valley Regional Planning Agency, Glastonbury CT, December 1981, UMTA-CT-09-0030.

- CONNECTICUT, Valley Region

DISTRICT OF COLUMBIA

Improved Transportation Services for the Elderly & Handicapped in Northern Virginia: Phase 2. Final Report.

Northern Virginia Planning District Commission, Annandale VA, prepared for the Washington Council of Governments, October 1981, UMTA-DC-09-0002.

- NORTHERN VIRGINIA

FLORIDA

Transportation Energy Contingency Plan for Hillsborough County.

Tampa Urban Area Transportation Study, Tampa FL, prepared for Hillsborough County, January 1982, UMTA-FL-09-0090.

- FLORIDA, Tampa (Hillsborough County)

West Palm Beach Urban Study Area: Elderly & Handicapped Transportation Needs Study. Summary Report.

Kimley-Horn & Associates, Inc., prepared for Metropolitan Planning Organization for the West Palm Beach Urban Study Area, December 1981, UMTA-FL-09-0076.

- FLORIDA, West Palm Beach

INTERSTATE

Improved Transportation Between Midtown Passenger Terminals.

The Port Authority of New York & New Jersey, Traffic Engineering Division, New York NY, prepared for Tri-State Regional Planning Commission, March 1982, UMTA-IT-09-0069.

- NEW YORK, New York (Midtown Manhattan)

MINNESOTA

Bus Studies 1981: An Analysis and Evaluation of Bus Service Improvement Projects.
Barton-Aschman Associates, Inc., Minneapolis MN, and Westwood Planning & Engineering, Minneapolis MN, prepared for Metropolitan Transit Commission, July 1981, UMTA-MN-09-0034.
- MINNESOTA, Minneapolis and St. Paul

Subregional Transit Planning Study: Subregion 3. Final Report.
Bennett, Ringrose, Wolsfeld, Jarvis, Gardner, Inc., Minneapolis MN, prepared for Metropolitan Transit Commission, October 1981, UMTA-MN-09-0026.
- MINNESOTA

NEW YORK

Economic and Financial Impacts of Strategies to Improve Air Quality: A Practitioner's Guidebook.
Polytechnic Institute of New York, Brooklyn NY, prepared for Tri-State Regional Planning Commission, November 1981, UMTA-NY-09-0004.
- NEW YORK-NEW JERSEY-CONNECTICUT

Niagara Falls International Transportation Center Feasibility and Site Selection Study.
Niagara Frontier Transportation Committee, Niagara Falls NY, October 1981 update, UMTA-NY-09-0022.
- NEW YORK, Niagara Falls

Queens Transit Alternatives Study. Phase 1: Executive Summary.
Booz-Allen & Hamilton, Inc., Philadelphia PA, et al., prepared for Queens Transit Project Steering Committee, and Tri-State Regional Planning Commission, January 1982, UMTA-NY-09-0046 (3 rpts).
- NEW YORK, New York (Queens/Long Island Corridor)

Queens Transit Alternatives Study. Phase 1: Final Report.
Booz-Allen & Hamilton, Inc., Philadelphia PA, et al., prepared for Queens Transit Project Steering Committee, and Tri-State Regional Planning Commission, January 1982, UMTA-NY-09-0046 (3 rpts).
- NEW YORK, New York (Queens/Long Island Corridor)

Queens Transit Alternatives Study. Phase 1: Technical Appendix.
Booz-Allen & Hamilton, Inc., Philadelphia PA, et al., prepared for Queens Transit Project Steering Committee, and Tri-State Regional Planning Commission, January 1982, UMTA-NY-09-0046 (3 rpts).
- NEW YORK, New York (Queens/Long Island Corridor)

PENNSYLVANIA

Management Study of the Red Rose Transit Authority.
Simpson & Curtin, A Division of Booz-Allen & Hamilton Inc., Philadelphia PA, prepared for Lancaster County Planning Commission, December 1981, UMTA-PA-09-0091.
- PENNSYLVANIA, Lancaster

SEPTA Capital Improvement Strategy: Bus Fleet Replacement and Bus Maintenance Facility Renovations.
Southeastern Pennsylvania Transportation Authority (SEPTA), Philadelphia PA, prepared for Delaware Valley Regional Planning Commission, September 1981, UMTA-PA-09-0080.
- PENNSYLVANIA, Philadelphia

PUERTO RICO

Metropolitan Bus Authority Accident Prevention Program.
Metropolitan Bus Authority, Commonwealth of Puerto Rico, Department of Transportation and Public Works, Hato Rey PR, September 1980, UMTA-PR-09-0008.
- PUERTO RICO, Hato Rey

TENNESSEE

Tennessee Intercity Bus Study.
Volume 1: Study Report.
J.R. Wilburn & Associates, Inc., Huntsville AL, prepared for Tennessee Department of Transportation, November 1981, UMTA-TN-09-8002 (2 rpts).
- TENNESSEE

Tennessee Intercity Bus Study.
Volume 2: Appendix.
J.R. Wilburn & Associates, Inc., Huntsville AL, prepared for Tennessee Department of Transportation, November 1981, UMTA-TN-09-8002 (2 rpts).
- TENNESSEE

TEXAS

A Generalized Approach to Evaluating Impacts of Short Range Transit Alternatives. Technical Report 1066-2F.
The Texas A&M University System, Texas Transportation Institute, College Station TX, prepared for Texas State Department of Highways & Public Transportation, August 1981, UMTA-TX-09-8006 (2 rpts).
- TEXAS

TEXAS

A Generalized Approach to Evaluating Impacts of Short Range Transit Alternatives. Summary Report of Technical Report 1066-2F.
The Texas A&M University System, Texas Transportation Institute, College Station TX, prepared for Texas State Department of Highways & Public Transportation, August 1981, UMTA-TX-09-8006 (2 rpts).
- TEXAS

Guidelines for Evaluation of Human Services Transportation Programs. Technical Report 1065-2F.
The Texas A&M University System, Texas Transportation Institute, College Station TX, prepared for Texas State Department of Highways & Public Transportation, August 1981, UMTA-TX-09-8006 (2 rpts).
- TEXAS

Level-of-Service Concept Applied to Public Transportation. Technical Report 1067-1F.
The Texas A&M University System, Texas Transportation Institute, College Station TX, prepared for Texas State Department of Highways & Public Transportation, August 1981, UMTA-TX-09-8006.
- TEXAS

VIRGINIA

Adjustable Work Schedule Program.
Virginia Department of Highways & Transportation, Public Transportation Division, March 1982, UMTA-VA-09-8005.
- VIRGINIA, Richmond

Improved Transportation Services for the Elderly & Handicapped in Northern Virginia: Phase 2. Final Report.
Northern Virginia Planning District Commission, Annandale VA, prepared for the Washington Council of Governments, October 1981, UMTA-DC-09-0002.
- NORTHERN VIRGINIA

WISCONSIN

La Crosse Area Energy Contingency Plan 1981.
La Crosse City Planning Department, La Crosse WI, prepared for the City of La Crosse, December 1981, UMTA-WI-09-0043.
- WISCONSIN, La Crosse

UMTA REGIONS AND REGIONAL OFFICES, 1982

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INTRODUCTION

The Urban Mass Transportation Administration (UMTA) Bi-Monthly Abstracts is published by UMTA's Information Services Staff. It contains abstracts of the results of the Research, Development, and Demonstrations; Technical Studies; and University Research projects (Sections 6, 8/9, and 11 of the Urban Mass Transportation Act of 1964, as amended), which were sponsored and funded by UMTA. The abstracted reports are available from the National Technical Information Service (NTIS). Order and loan information is provided in this report. Each abstract shown provides information on the report title, personal and corporate author(s), source of UMTA funding, date of publication, NTIS order number, and NTIS price code. The Bi-Monthly Abstracts also includes a list of recent Section 8/9 acquisitions, which are arranged by state. These Section 8/9 reports are not available from NTIS. Loan copies have been deposited with the TRISNET Regional Centers.

The Abstracts is arranged into seventeen subject classifications, and within each classification, the arrangement is alphabetical by title. These subject classifications are listed after this Introduction. A Cumulative Retrieval Term Index appears at the end of every third issue of the Bi-Monthly Abstracts. The next Index will appear in the November-December 1982 issue. Questions and comments concerning this Bi-Monthly Abstracts Report and the documents cited within it, should be addressed to: U.S. Department of Transportation, Urban Mass Transportation Administration, Information Services, Room 6419, 400 Seventh Street, S.W., Washington, DC 20590, Telephone: (202) 426-9157.

The Annual Volume of the Urban Mass Transportation Abstracts has been discontinued. It has been incorporated into the UMTRIS (Urban Mass Transportation Research Information Service) data base. UMTRIS was developed in 1981 within the Transportation Research Board (TRB), an agency of the National Research Council, under contract to the Urban Mass Transportation Administration. The UMTRIS computerized data system incorporates information on planning, designing, maintaining, operating, managing, and financing all modes of public transit including bus, trolley bus, light and heavy rail, advanced guideway systems, taxi and vanpool services, ferries, and local air service. The first two-volume bibliography produced by UMTRIS has been published. It is dated April 1982 and contains 7064 citations and appropriate indexing for citations added to the Transportation Research Information Service (TRIS) data base between 1974 and 1980. Citations include technical reports, journal articles, handbooks, statistical sources, computer programs, and other information sources from both U.S. and international sources. The Bibliography is titled Urban Mass Transportation Abstracts Cumulative Bibliography, 1974-1980. Volume 1, which is the Abstracts, contains the citations arranged in 28 categories. Volume 2, which is the Index, contains more than 3400 subject terms used for the indexing along with appropriate cross references to citations in Volume 1. The Bibliography is distributed by TRB, 2101 Constituion Avenue, N.W., Washington, DC 20418, Telephone: (202) 334-3211.

UMTA ABSTRACTS SUBJECT CLASSIFICATION

01. Conventional Transportation Services

02. Center City/Traffic Restraints

03. Energy and Environment

04. Fares/Pricing and Services Innovations

05. Financing

06. Land Use

07. Non-Urban and Low-Density Area Transportation

08. Paratransit Systems and Services

09. Planning, Policy and Program Development

10. Political Processes and Legal Affairs

11. Safety/Product Qualification and Security

12. Socioeconomics

13. Technology Development and Deployment
    - A. Bus and Paratransit Vehicle Technology
    - B. Bus and Paratransit Operational Technology
    - C. New Systems and Automation
    - D. Rapid Rail Vehicles and Systems
    - E. Commuter Rail Vehicles and Systems
    - F. Light Rail Vehicles and Systems
    - G. Construction/Tunneling Technology

14. Transportation of Disadvantaged/Special-User Groups

15. Transportation/Transit Management

16. Transportation Productivity and Efficiency

17. Urban Goods Movement

UMTA-SPONSORED REPORTS AVAILABLE FROM THE NATIONAL TECHNICAL INFORMATION SERVICE

01. CONVENTIONAL TRANSPORTATION SERVICES

Timed Transfer System Planning, Design and Operation.
Vuchic, V. R., et al. University of Pennsylvania, Department of Civil & Urban Engineering. UMTA-PA-11-0021-82-2, October 1981, 136p.

This study analyzes various methods of providing transit services in low-density areas. It focuses on the type of transit network and operation in which special transit centers are organized and in which vehicles from several different lines converge at the same time, enabling passengers to transfer between any two lines, departing in their respective directions. This type of service is called timed transfer system (TTS). TTS represents a coordinated transit network that passengers can utilize for travel between any two points in the served area with reasonable convenience and average travel speed. Applications of TTS have rapidly increased in suburban areas and small towns with dispersed travel patterns and limited street congestion. This report provides an example of the application of TTS to a suburban area in Philadelphia. The report presents an overview of different types of public transport services for low-density areas and a detailed description of TTS characteristics. A systematic classification of TTS networks and relationships of their operating elements, such as route lengths, headways, speeds, number of vehicles, etc., are shown. The authors state that the basic initial decision in planning is to establish whether TTS or a conventional transit network should be used in a given city or section of city. The Executive Summary to this report is PB 82-220138, A02.

NTIS No. PB 82-220146 Price A07

02. CENTER CITY/TRAFFIC RESTRAINTS

Pedestrian/Transit Mall Study. Volume I: Final Report.
New York City Department of Transportation, Bureau of Planning & Research. UMTA-IT-09-0069-82-1, September 1981, 34p.

The purpose of this study was to define a method for assessing the nature of right-of-way requirements, and to devise a systematic approach toward right-of-way design that promotes a maximum of mobility with environmental and economic enhancement. This report is comprised of three parts: Part 1 establishes a classification of city streets and their functions and identifies general objectives for use of the public right-of-way; Part 2 discusses the concept of a pedestrian/transit mall, and identifies criteria and an analytical framework for developing a systematic approach to determining the appropriate needs and applications of pedestrian/transit improvements to the public right-of-way; and Part 3 presents pedestrian flow density scales in relation to design solutions desired, and offers some general guidelines to consider in pedestrian/transit mall implementation.

Minneapolis, Minnesota, Philadelphia, Pennsylvania, and Portland, Oregon, are three states that have created pedestrian/transit malls using similar analytic techniques. A discussion of the merits of each can be found in a report titled: Streets for Pedestrians and Transit: An Evaluation of Three Transit Malls in the United States, February 1979, PB 295-728, A12.

NTIS No. PB 82-206392 Price A03

04. FARES/PRICING AND SERVICES INNOVATIONS

Off-Peak Fare-Free Transit: Mercer County, New Jersey.

Connor, D. L. DeLeuw, Cather & Company, under contract to Transportation Systems Center. UMTA-MA-06-0049-80-3, March 1982, 182p.

The Mercer County Fare-Free Demonstration was a 12-month test program of the effects of eliminating transit fares system-wide on the Mercer Metro bus system during off-peak hours. This report summarizes the analysis and presents the findings of the demonstration's impacts. This evaluation was designed and conducted to explore the effects of the fare elimination on the transit operator, riding public, general populace, and local business community. Evaluation issues were concerned with impacts on ridership volumes, passenger characteristics, transit operations, public awareness and attitudes, effects on commercial activities, and public response to the fare elimination. The evaluation data mainly consisted of passenger surveys, general population surveys, special group surveys, and ridership counts conducted before, during, and after the fare elimination. The major conclusion reached by the evaluators of the demonstration was that free-fare is probably more valuable as a tool for transit promotion than as a full-time transit pricing strategy. A related report is titled: Findings of Preliminary Analyses of the Trenton Off-Peak Fare-Free Transit Demonstration, January 1979, PB 298-893, A04.

NTIS No. PB 82-207119 Price A09

05. FINANCING

Effect of Budgetary Constraints on Transit System Performance.

Morlok, E. K., et al. University of Pennsylvania, Civil & Urban Engineering Department. UMTA-PA-11-0022-82-2, January 1982, 77p.

Worsening financial conditions of the nation's urban transit systems stimulated interest in this study. The purpose of this study was to examine the effect of varying budgetary conditions of transit systems on the ability of those systems to provide transit service. To identify what the effects of these conditions would be on transit system performance, a few carefully selected case studies were analyzed. This study examined bus transit service provided by the Southeastern Pennsylvania Transportation Authority (SEPTA) in the Philadelphia area, the Alameda-Contra Costa Transit District (AC Transit) in the San Francisco area, the commuter rail operations of the Chicago and Northwestern Railroad (CNW), the Long Island Rail Road (LIRR), and the Reading ConRail commuter operations in the Philadelphia area now being operated for SEPTA. The authors state that the comparison of the two bus transit system raises serious questions about the efficiency of the SEPTA system, though whether the poor financial condition of SEPTA precede, or was a consequence of the increases in costs, cannot be definitely answered. In the case of the LIRR and the Reading commuter rail

operations, the authors note that both systems were severely budgetarily constrained, and the response was to maintain the LIRR intact and to replace or modernize the plant, while Reading service was cut as modernization proceeded. The CNW remained profitable until recently. The significant difference from the other railroads was that considerable new technology was brought to bear on the service. This suggests that significant technological innovation in urban transportation may be necessary. The NTIS number for the Executive Summary of this report is PB 82-201666, A02.

NTIS No. PB 82-201013 Price A05

07. NON-URBAN AND LOW-DENSITY AREA TRANSPORTATION

Timed Transfer System Planning, Design and Operation.

Vuchic, V. R., et al. University of Pennsylvania, Department of Civil & Urban Engineering. UMTA-PA-11-0021-82-2, October 1981, 136p.

This study analyzes various methods of providing transit services in low-density areas. It focuses on the type of transit network and operation in which special transit centers are organized and in which vehicles from several different lines converge at the same time, enabling passengers to transfer between any two lines and then depart in their respective directions. This type of service is called timed transfer system (TTS). TTS represents a coordinated transit network that passengers can utilize for travel between any two points in the served area with reasonable convenience and average travel speed. Applications of TTS have rapidly increased in suburban areas and small towns with dispersed travel patterns and limited street congestion. This report provides an example of the application of TTS to a suburban area in Philadelphia. The report presents an overview of different types of public transport services for low-density areas and a detailed description of TTS characteristics. A systematic classification of TTS networks and relationships of their operating elements, such as route lengths, headways, speeds, number of vehicles, etc., are shown. The authors state that the basic initial decision in planning is to establish whether TTS or a conventional transit network should be used in a given city or section of city. The Executive Summary to this report is PB 82-220138, A02.

NTIS No. PB 82-220146 Price A07

08. PARATRANSIT SYSTEMS AND SERVICES

Commuter Connection: Flexible Ridesharing in Marin County, California.

Dorosin, E. Crain & Associates, under contract to Research & Special Programs Administration. UMTA-CA-06-0128-81-1, December 1981, 92p.

This report documents the Commuter Connection Flexible Registered Ridesharing Demonstration Project. The purpose of this project was to test the feasibility of flexible registered ridesharing. Flexible registered ridesharing is a system whereby registered commuters can share rides to work on an occasional basis as either a driver or rider. Commuter Connection, Inc., a nonprofit California corporation, was created specifically for the purpose of designing and implementing this demonstration. The demonstration was tested in the Golden Gate commute corridor in the San Francisco Bay Area in California. This report describes project planning and development during 16 months of operations, describes members' use and attitudes about the system, and analyzes the

demonstration findings. The report identifies those evaluation issues answered by project findings, those that remain unanswered, and a series of issues critical to success and in need of further study. The Commuter Connection concept proved to be workable for 7% of Transbay commuters along the Golden Gate Corridor south into San Francisco. The demonstration successfully answered questions regarding institutional constraints, insurance coverage, market selection criteria, the value of an in-person registration process, and the effectiveness of a member boarding pass for this form of ridesharing. Users viewed the program as a viable back-up to their primary mode and the in-person registration process as a key to program acceptance.

NTIS No. PB 82-184672 **Price A05**

Coordination of Paratransit: Case Studies of Special Transportation Agencies.

McKnight, C., et al. University of Illinois at Chicago Circle, Urban Transportation Center. UMTA-IL-11-0028-82-4, February 1982, 101p.

This report presents the results of the second year of a three-year project to study the effect of the size of the provider on the efficiency and quality of paratransit in general, and on special services in particular. The first year study determined that economies of scale exist in taxi companies and special transportation services. The upcoming third year study will determine the effect of size on the quality of service of demand responsive services. The purpose of this study is to determine if coordination increases efficiency. This is done by examining the differences between coordinated transportation agencies and special service agencies in terms of their internal relations, relations to agencies provided with transportation, and relations to funding agencies, such as governments. Case studies were done of 12 agencies that provide special transportation. Agencies studied were chosen to represent a variety of types of coordination, institutions, and geographic settings. In addition, agencies whose clients use the transportation provided were interviewed by telephone. Information gathered in these secondary interviews dealt with how the clients used the transportation, the nature of the agreement between the two agencies, differences in cost, and the benefits and drawbacks of the coordinated transportation. This study points out that agencies providing consolidated service were more efficient than uncoordinated agencies; however, their greater efficiency more often led to a better quality of service and expansion of service than to lower costs. Related reports are: Economies of Scale in Paratransit: Special Service Agencies and Taxicab Companies, 1981, PB 81-214082, A05 and Shared-Ride Taxi Services as Community Public Transit, 1980, PB 80-226475, A11.

NTIS No. PB 82-219148 **Price A06**

Free Enterprise Urban Transport.

Roth, G. and G. G. Wynne. Multisystems, Inc. UMTA-DC-06-0150-82-1, January 1982, 66p.

The conventional wisdom that public transport in cities cannot be provided at a profit and that it has to be supplied by publicly-owned or franchised monopolies, is examined in this report. This report draws on the experience of developing countries in the operation of non-subsidized, privately-run and profitable urban transport systems to make the point that these systems, generally characterized by smaller vehicles, deserve closer examination in this country. The report points out that the jitneys, collective taxis, and minibuses discussed in this report can provide local transportation options for large segments of the population, assist in relieving the pressure on the major franchised public transport systems, and generate employment. This report provides an overview that describes a number of public transport systems abroad, largely in developing countries, that operate

at a profit and indicates action that enables the United States to develop networks of fast, reliable urban public transport services responsive to users' needs, at prices that most can afford. This report presents examples of different types of urban public transport that run at a profit while providing good service and a description is given of the characteristics of successful urban public transport systems. The study reviews the private provision of public transport in U.S. cities and considers the possibilities of their expansion. An outline is also given of how lessons from abroad can be applied to U.S. transportation systems.

NTIS No. PB 82-205683 Price A04

09. PLANNING, POLICY AND PROGRAM DEVELOPMENT

See also: "Free Enterprise Urban Transport" in Subject Classification 08 above.

Guide to Forecasting Travel Demand With Direct Utility Assessment.
Kocur, G., et al. Dartmouth College, Thayer School of Engineering, in cooperation with Wisconsin Department of Transportation, Division of Planning and Budget. UMTA-NH-11-0001-82-1, September 1981, 280p.

Direct utility assessment (DUA) or, conjoint analysis, is a demand modeling technique based on obtaining responses to a series of hypothetical situations that have been constructed using an experimental design. The responses to the experiment are analyzed with multiple linear regression and can produce satisfactory models in many cases. It is possible to validate the regression models on actual data, and this second validation step is also discussed in this report. This report presents an overview description of the DUA technique and its applications and describes the construction of experimental designs, the development and administration, and the analysis of survey responses. A table of plans, examples of pretested instruments, and sample programs for data analysis are provided. Default models currently available for use by local agencies and techniques of quick policy analysis using DUA are also discussed. This manual is the first attempt in bringing DUA models to the attention of local planners. The report expresses that experience with DUA models suggests that they are able to play a useful role in forecasting and analyzing travel demand and that DUA is well suited for forecasing such issues as energy policy, new transit services, and bike lanes.

NTIS No. PB 82-200270 Price A13

12. SOCIOECONOMICS

Dynamic Analysis of Attitude-Behavior Response to Transportation Service Innovation.
Koppelman, F. S. and P. K. Lyon. Northwestern University, Transportation Center. UMTA-IL-11-0012-82-3, December 1981, 102p.

This report describes the development, application, and evaluation of a dynamic model of consumer attitude and behavior response to new or changed transportation service. The conceptual model which forms the basis for this research describes the relationship between transportation service and traveler response as a set of causal linkages. The behavioral process is repeated over time with the user adjusting his or her attitudes and pattern of travel behavior in response to new services or changes in existing service. The model structure explicitly incorporates the temporal characteristics of consumer behavior and

includes the structural relationship between attitudes and behavior. This model was applied to a study of traveler response to the innovation of a paratransit service in Schaumberg, Illinois in September 1979. Evidence of the influence of information and situational constraints on perceptions and choice is found. A high degree of persistence in individual behavior over the study period is also observed. The authors point out that the methodology developed to study travel response in a dynamic attitude-behavior structure substantially enhances existing capabilities for travel behavior analysis and that refinements will be needed to obtain stronger substantive results. The complexity of the model suggests that it continue to be viewed as a research tool. This report is No. 423-II-2 in the Series Monitoring the Implementation of Innovative Transportation Services. Others in the series are No.423-II-1, PB 82-180506, A02, which is the Executive Summary to this report, and No.423-II-3, entitled: Time-Dependent Structural Equations Modelling of the Relationship Between Attitudes and Discrete Choice Behavior of Transportation Consumers, PB 82-187311, A13.

NTIS No. PB 82-180514 Price A06

Guide to Forecasting Travel Demand With Direct Utility Assessment.

Kocur, G., et al. Dartmouth College, Thayer School of Engineering, in cooperation with Wisconsin Department of Transportation, Division of Planning & Budget. UMTA-NH-11-0001-82-1, September 1981, 280p.

Direct utility assessment (DUA) or, conjoint analysis, is a demand modeling technique based on obtaining responses to a series of hypothetical situations that have been constructed using an experimental design. The responses to the experiment are analyzed with multiple linear regression and can produce satisfactory models in many cases. It is possible to validate the regression models on actual data, and this second validation step is also discussed in this report. This report presents an overview description of the DUA technique and its applications and describes the construction of experimental designs, the development and administration, and the analysis of survey responses. A table of plans, examples of pretested instruments, and sample programs for data analysis are provided. Default models currently available for use by local agencies and techniques of quick policy analysis using DUA are also discussed. This manual is the first attempt in bringing DUA models to the attention of local planners. The report indicates that experience with DUA models suggests that they are able to play a useful role in forecasing and analyzing travel demand and that DUA is well suited for forecasing such issues as energy policy, new transit services, and bike lanes.

NTIS No. PB 82-200270 Price A13

The Role of Women in Family Transportation Behavior.

Bayes, T., et al. University of Kentucky Research Foundation. UMTA-KY-11-0001-82-1, March 1982, 140p.

The sample for this study was a stratified random sample consisting of 1500 women each from the urban counties of Jefferson and Fayette Counties in Kentucky. Married women only were sampled with a response rate of 62.49 percent to mailed questionnaires. Some objectives of this study were to: 1) determine the impact of employment on women's transportation patterns and behaviors; 2) determine the impact of employment on women's role enactment, or the degree to which respondents engage in various family and transportation role behavior; 3) determine the impact of employment on women's transportation behaviors; and 4) determine the impact of employment on women's adjustment expectations relative to transportation. This research showed that women's employment status did not effect their transportation resources, whether private

or public, and did not affect their role enactment levels. Employed women without children were found to have higher levels of family role enactment than non-employed women without children. Transportation related role enactment was found not to be affected by employment status. Non-employed and employed women did not differ in the frequency with which they made trips. Non-employed women had a higher frequency of trip linkage than employed women, however. No differences were found between employed and non-employed women in the frequency with which they drove themselves when making trips. Employed and non-employed women who had children did not differ in their transportation consumption levels and employed women without children had higher levels of transportation consumption than non-employed women without children.

NTIS No. PB 82-199589 **Price A07**

Traveler Responses to Service Level Changes and Variations During the Morning Peak Period.

Hendrickson, C., et al. Carnegie-Mellon University, Department of Civil Engineering. UMTA-PA-11-0024-82-1, January 1982, 77p.

This report summarizes the results of the research project: User Response to Time of Day Variations in Transit Service Level and Reliability, which was conducted at Carnegie-Mellon University from September 1980 to January 1982. This project accomplished an exploratory empirical analysis of the importance of variations in transportation level of service over the course of the peak period of travel in urban areas, particularly with regard to travelers' departure time decisions. Such time-dependent service characteristics include transit waiting time, travel time, and service reliability. This research project involved the collection and analysis of data on variations in transportation level of service as well as the estimation of individual department time and choice models. Attention was focused upon morning, peak periods to work. Data was gathered for trips from five suburban areas in the Pittsburgh, Pennsylvania Central Business District. Data on the extent of travel time peaking, variability in travel times, transit service, service reliability, and transit users' wait time variability are presented. Elasticities of mode choice and departure time decisions are calculated from estimated models. A variety of management policy changes are simulated and results estimated, including peak period toll and fare surcharges, capacity expansions, and increased transit service schedule reliability. Results of this study indicate that departure time decisions are more flexible than are mode choice decisions.

NTIS No. PB 82-194713 **Price A05**

13. TECHNOLOGY DEVELOPMENT AND DEPLOYMENT

13A. BUS AND PARATRANSIT VEHICLE TECHNOLOGY

Escalator Modification for the Handicapped: Phase 1 Final Report.

Foster-Miller Associates, Inc. UMTA-IT-06-0164-80-1, July 1980, 184p.

The need for moderate cost solutions to effect handicapped access to transit systems has resulted from the passage of Section 504 of the Rehabilitation Act of 1973. This is a study for the design and development of an escalator modification kit which, when applied to existing escalators, would provide means for vertical transportation of the handicapped. Included in this report are charts that list the dimensions and compatibility to the escalator modification of over 90 styles of wheelchairs made in the United States and other countries and a study by the

University of Virginia entitled: Concerning Wheelchair Accessibility on Proposed Escalator Modification. This modification kit includes two systems: 1) three special steps are deployed to form a wheelchair platform upon activation by an electronic user interface; and 2) a controlled start and stop system can be used with or without the platform modification. In either case, this latter automatic control stops the escalator for boarding and also when the appropriate step is at the opposite landing. This report includes discussions of the detailed design of the two systems and the escalator models to which the modification kits can be applied. Tables are provided giving dimensional information about wheelchair configurations now in use and their ability to fit on the deployed platform. Over 95 percent of currently used wheelchairs can be accommodated by this escalator modification. Crowd control techniques and system safety considerations are also a subject of this report. A complete set of engineering drawings that accompany this report is available from UMTA's Office of Socioeconomic and Special Projects.

NTIS No. PB 82-202367 **Price A09**

13C. NEW SYSTEMS AND AUTOMATION

Accelerating Moving Walkway Systems: Phase 2 Summary Report.
Fruin, J. and R. Marshall. Port Authority of New York & New Jersey. UMTA-IT-06-0126-82-1, March 1982, 90p.

The Accelerating Walkway System (AWS) Demonstration Program is a phased project leading to the public demonstration of an advanced technology variable speed accelerating moving walkway. Phase 1 of the AWS program involved: a thorough review of the variable speed walkway technology, including an assessment of status of design and development of the available systems; evaluation of performance characteristics, human factors relationships, and user safety; establishment of the potential AWS market, applications, and benefits; development of a program plan for the public demonstration; and conducting of an AWS Safety Seminar. This Phase 2 report summarizes the work of four contractors performed as part of Phase 2 of the AWS program. The four contractors selected were: 1) Ateliers et Chantiers de Bretagne (ACB) - manufacturer licensee of the TRAX loop overlapping pallet AWS; 2) Dunlop Ltd. - developers and manufacturers of the speedway reversible AWS; 3) The Boeing Company - developers of a loop overlapping pallet AWS; and 4) The Dean Research Corporation - developers of a roller treadway reversible AWS. Contractors' tasks for each of the AWS systems are described in this report and include: Task 1: AWS Description and Design Detailing; Task 2: AWS Safety and Performance; Task 3: AWS Maintainability and Reliability; Task 4: AWS Life Cycle Cost Analysis; and Task 5: Phase 3 and 4 Preliminary Program Implementation Plan.

NTIS No. PB 82-218942 **Price A05**

Downtown People Mover (DPM) Winterization Test Demonstration: UMI.
Sullivan, D. P. and J. Zaenger. Universal Mobility, Inc., under contract to Research & Special Programs Administration. UMTA-MA-06-0081-81-4, January 1982, 242p.

This report describes and summarizes the test activities and presents the results of a two-year winter operation test program for three technologically-different Automated Guideway Transit (AGT) systems. The basic objective of the program was to determine if fully-automated Downtown People Movers (DPM) systems could provide reliable urban transportation in severe winter climates. Specifically, the program was to determine the capabilities and limitations of the

suppliers' developments in the areas of traction, propulsion, braking, steering, power collection, vehicle and guideway electronics, switching, door opening, and overall system performance in severe winter weather. The program addressed these areas through a combination of subsystem and system-level capability under various winter conditions. This report shows that the UNIMOBIL DPM system of Universal Mobility, Inc., can perform satisfactorily in harsh winter environments. The severe winter tests were performed during the winters of 1978-1979 and 1979-1980 and revenue service performance was demonstrated during the latter winter. This report describes the climatic and operating conditions under which the UNIMOBIL system was both tested and demonstrated at a site south of Minneapolis-St. Paul, Minnesota. The climatology of this site provides frequent sub-0 F temperatures and an average annual snow accumulation of nearly 50 inches. The characteristics of the baseline UNIMOBIL vehicle and its Slimline Guideway were utilized to demonstrate that neither snowfalls nor extreme cold should necessarily constrain DPM operations and that appropriate system designs and operating procedures can preclude, costly responses to either of these weather conditions. It was determined that frost on the power and/or control rails can produce more frequent and lasting impacts on DPM operations and a satisfactory and cost-efficient solution to this problem was also demonstrated. Two other contractors involved in the DPM tests are Westinghouse and Otis Elevator. Their separate report titles are: Downtown People Mover (DPM) Winterization Test Demonstration: Westinghouse, PB 82-189184, A08 and Downtown People Mover (DPM) Winterization Test Demonstration: Otis Elevator, PB 82-185752, A10. The summary document for the three reports is: Summary of Downtown People Mover (DPM) Winterization Test Activities, PB 82-187402, A06.

NTIS No. PB 82-187998 Price A11

Extended System Operations Studies for Automated Guideway Transit Systems.

Boldig, J. D. and J. T. Thompson. General Motors Corporation, GM Transportation Systems Center, under contract to Research & Special Programs Administration. UMTA-MA-06-0048-81-12, February 1982, 62p.

The objectives of the System Operations Studies (SOS) of the Automated Guideway Transit Technology (AGTT) program were to: 1) develop models for the analysis of system operations; 2) evaluate AGT system performance and cost; and 3) establish guidelines for the design and operation of AGT systems. This final report summarizes and documents the work accomplished by General Motors and the Transportation Systems Center in the fulfillment of the Extended SOS contract. The three main areas covered in this report are: 1) the development of a set of analysis procedures that are supported by the computer models developed during the SOS project; 2) the software changes made to the Discrete Event Simulation Model (DESM) to expand and improve its capability to model guideway transit systems; and 3) the validation of the ability of the DESM to accurately model vehicle merges and the generality of modeling custom designed dispatching algorithms. Also included in this report is a description of three system level models and their possible application to the analysis of conventional transit.

NTIS No. PB 82-194119 Price A04

Extended System Operations Studies for Automated Guideway Transit Systems: Procedure for the Analysis of Representative AGT Deployments.

Lee, R. A. General Motors Corporation, GM Transportation Systems Division, under contract to Research & Special Programs Administration. UMTA-MA-06-0048-81-10, December 1981, 285p.

A major output of the Systems Operations Studies (SOS), which is one segment of UMTA's Automated Guideway Transit Technology (AGT) program, is a set of comprehensive computer models that support the analysis of AGT systems. The purpose of this report is to present a general procedure for using the SOS software to analyze AGT systems. Data to aid the analyst in specifying input information, required as input to the software, are summarized in the appendices. The data is based on analyses of information derived from existing and proposed systems during the SOS program. The procedure described in this report is based on experience gained during the SOS program and from other applications of the SOS software. Potential applications of the SOS software are discussed in terms of the deployment characteristics that can be evaluated using the SOS models. The SOS software can be used to simulate the operation of an entire AGT system deployment or to evaluate the detailed operation of particular guideway segments and stations. The software can also be used to evaluate life cycle costs, system availability, and feeder system requirements. Other applications for the SOS software include support feasibility studies or preliminary engineering of AGT systems that may be actually deployed in specific locales and assessing existing AGT systems and evaluating proposed system modifications.

NTIS No. PB 82-192246 **Price A13**

Safety and Reliability of Automated Guideway Transit Systems.

Thompson, R. E., et al. Battelle Columbus Laboratories. UMTA-OH-06-0028-82-1, March 1982, 85p.

The future success of Automated Guideway Transit (AGT) systems is highly dependent upon achieving and maintaining suitable levels of safety and reliability for these systems. Existing AGT systems have much to offer in the way of "lessons" learned in these areas and can serve as examples for, and provide guidance to, future systems. This is the final report for the series entitled Safety and Reliability of AGT Systems as conducted by Battelle's Columbus Laboratories. This report was the final task in a series of interrelated tasks which comprise the overall study. This study was conducted as a parallel United States/Federal Republic of Germany program. The German effort was sponsored by the Ministry of Research and Technology and conducted by Studiengesellschaft Nahverkehr mbH. Each organization investigated a selected set of AGT systems located in their respective countries and produced separate sets of reports describing the nature and results of their activities. This study examined the safety and reliability experience of six AGT systems in the United States. The systems are: AIRTRANS, BART, Boeing, Morgantown, Otis, and WMATA. This is the last and final report in this series. This report contains a summary of the overall study along with the resulting conclusions and recommendations for further study.

NTIS No. PB 82-202375 **Price A05**

Summary of Downtown People Mover (DPM) Winterization Test Activities.
Silva, L. P. U.S. Department of Transportation, Research & Special Programs Administration. UMTA-MA-06-0081-81-5, January 1982, 108p.

This report describes and summarizes the test activities and presents the results of a two-year winter operation test program for three technologically-different Automated Guideway Transit (AGT) systems. The basic objective of the program was to determine if fully-automated Downtown People Movers (DPM) systems could provide reliable urban transportation in severe winter climates. Specifically, the program was to determine the capabilities and limitations of the suppliers' developments in the areas of traction, propulsion, braking, steering, power collection, vehicle and guideway electronics, switching, door opening, and overall system performance in severe winter weather. The program addressed these areas through a combination of subsystem and system-level capability under various winter conditions. The three contractors involved were: Westinghouse Corporation; Otis Elevator Company; and Universal Mobility, Inc. Separate reports for each contractor contain the detailed results of their test program. The titles for these reports are: Downtown People Mover (DPM) Winterization Test Demonstration: Westinghouse, PB 82-189184, A08; Downtown People Mover (DPM) Winterization Test Demonstration: Otis Elevator, PB 82-185752, A10; and Downtown People Mover (DPM) Winterization Test Demonstration: UMI, PB 82-187998, A11.

NTIS No. PB 82-187402 Price A06

13D. RAPID RAIL VEHICLES AND SYSTEMS

Massachusetts Bay Transportation Authority No.12 Orange Line Vehicle Evaluation.
Simmonds, K. J. and G. R. Arnold*. *Boeing Services International, Inc. Transportation Test Center. UMTA-CO-06-0001-82-1, October 1981, 148p.

This report presents an engineering evaluation of the No.12 Orange Line rapid transit cars operated by the Massachusetts Bay Transportation Authority. The evaluation was accomplished through a test program carried out from February through April 1981 at the Transportation Test Center in Pueblo, Colorado. The scope of the program included vehicle performance, ride quality, acoustic transmission, absorptivity tests, and an evaluation of the squeal properties of several brake shoe types. Wherever appropriate, test data were compared to the Vehicle Specifications Criteria and ride quality data were compared to the International Organization for Standardization (ISO) guidelines for ride comfort. The test data show that the vehicles generally met the requirements of their specification criteria and deficiencies were noted in the friction-only and emergency braking performance. The ride quality was dominated by a vertical vibration at the carbody center, thought to be excitation of the first vertical bending mode. The phenomenon was aggravated by passenger load and speed. At higher passenger loads and speeds, the vertical vibration approached the 25-minute reduced comfort boundary of the ISO guidelines. The contribution of the vehicle doors to the transmissibility of noise to the vehicle interior was defined, together with the effectiveness of acoustic ceiling panels in attenuating interior noise. The brake squeal tests identified a type of lead-and-asbestos-free shoe which did not squeal, but which exhibited a braking performance loss compared to the standard brake shoes.

NTIS No. PB 82-179938 Price A07

Use of Life-Cycle Costing for Transit Equipment Procurement.

Winslow, R. H. Gill Associates, Inc., under contract to U.S. Department of the Navy, Naval Underwater Systems Center. UMTA-RI-06-0007-80-2, November 1980, 90p.

Life Cycle Costing (LCC) is a technique for objectively incorporating the costs of ownership in the procurement selection process. LCC is particularly appropriate for transit rolling stock because of the high costs associated with ownership and operation of such equipment and because most of this equipment is manufactured specifically for transit use. This study of the feasibility of using LCC in the procurement of transit vehicles was initiated in 1976. The scope of work and coverage of this project have been adjusted several times to conform to changing conditions in the industry, amendments of Federal law, and accumulating experience in applying LCC for procurement. This study explores possible uses of LCC for selection of transit equipment and reviews a variety of techniques that have been used by Federal, State, local, and private industry in the development of LCC and for protection of the purchasers. Obstacles and barriers to the use of LCC are weighed. The implications of LCC for UMTA programs and the possible benefits and other effects of applying LCC to transit equipment are projected. Among the effects considered are changes in staffing, capital, and operating fund needs in both UMTA and local transit agencies. Appropriately applied, LCC should result in significant savings in improvements in equipment and particularly in energy and maintenance costs. Impact on transit operators will consist, in most cases, of an initial requirement for additional funds for equipment acquisition, compensated by future savings in operating costs.

NTIS No. PB 82-187493 Price A05

13F. LIGHT RAIL VEHICLES AND SYSTEMS

Light Rail Transit Car Specification Guide.

Elms, C., et al. N. D. Lea & Associates, Inc., under contract to Research & Special Programs Administration. UMTA-MA-06-0025-81-4, December 1981, 214p.

This Light Rail Transit Car Specification Guide is not a procurement document in itself. It is intended to be used as a guide by light rail transit operators and purchasers of such equipment in the preparation of technical specifications. Because of differing site-specific needs, this Specification Guide has been organized to provide ample freedom of choice among a wide range of options. Thus, both an operator whose needs dictate a sophisticated vehicle and the operator whose requirements can be met by a very simple vehicle, can use this document as a guide in drafting their individual specifications. This Car Specification Guide has evolved from the original U.S. Standard Light Rail Vehicle (SLRV) Specification developed in 1972, and incorporates a number of revisions which reflect: changes which may reduce vehicle purchase costs and complexity; provisions for a number of purchaser selected options; a wider specification so that a new vehicle design is not required and permits designs of vehicles which are already in passenger service; and clarification of requirements so that compliance with the specification can be measured or proven to be met.

NTIS No. PB 82-190737 Price A10

15. TRANSPORTATION/TRANSIT MANAGEMENT

Case Histories in Human Resources Management in Public Mass Transportation.
Mitchell, H. E. University of Pennsylvania, The Wharton School, Human Resources Center. UMTA-PA-06-0045-82-1, January 1982, 90p.

Productive, qualified personnel and organizational effectiveness are vital to the successful, cost-conscious operation of public transit. These requirements are especially imperative in view of increasing demands being made by public transit patrons for modern, efficient transportation service. The problem is further compounded by the impact of changing technologies and rising operating costs. If people are a major asset to an organization, then the development of people and organizational conditions for their full utilization should be of utmost importance. This study provides a much needed perspective of how transit organizations function in addressing the human resources requirements. The need to develop case history material denoting the current complexities of management problems in education and training was also recognized. Therefore, eight case studies were developed from the author's field experience in seven major transit properties in 1978 and 1979. The field work for these case studies was carried out with the cooperation of personnel in the transit properties, which have been disguised in the report for purposes of publication. The cases vary in their complexity, and the central theme in each case history was not predetermined. The main issue reflects a human resource problem which management in each case was currently facing.

NTIS No. PB 82-188749 Price A05

Case Histories in Human Resources Management in Public Mass Transportation. Instructor's Manual.
Mitchell, H. E. University of Pennsylvania, The Wharton School, Human Resources Center. UMTA-PA-06-0045-82-2, January 1982, 21p.

The purpose of this Instructor's Manual is to provide assistance in using its companion report, which is abstracted above. The main objective of the cases is to give the student a human resource perspective while analyzing eight human resource management cases of varying complexity in the field of mass public transportation. Included in this manual for each case are: 1) suggestions regarding the use of the case; 2) a case summary; 3) assignment questions for discussion; and 4) bibliographic references.

NTIS No. PB 82-188756 Price A02

Management Audit of the Decatur Public Transit System.
Simpson & Curtin Division of Booz, Allen & Hamilton, Inc. UMTA-IL-09-8002-82-1, April 1981, 151p.

This management audit of the Decatur Public Transit System (DPTS) was conducted in two phases, both of which are presented in this report. Phase I: Audit Findings. was based on data collected between July and December 1980. Phase I describes the general characteristics of the transit system environment, a refined statement of goals and objectives, a peer group analysis, and the analysis and findings in five functional areas: 1) Management and Administration; 2) Transportation; 3) Maintenance; 4) Marketing; and 5) Finance. In the audit of each of these functional areas, an analysis was conducted of existing policies, practices, and performance. These findings comprise the focus of the analysis for Phase II of the audit. Phase II: Corrective Action Program, is based in part on Phase I findings, plus data collection between January and April 1981. Phase II presents specific recommendations for improving performance in the areas

identified in Phase I. The overall audit should provide the managers of the DPTS with the framework to improve performance. Therefore, since the internal organization of DPTS does not appear to present improvement opportunities, the focus of Phase II will be to develop a plan for management to follow in carrying out improvement opportunities in the other functional areas.

NTIS No. PB 82-192121 Price A08

Review and Evaluation of the Use of Bus Operator Testing Procedures in the Personnel Selection Process Within the Transit Industry.

Jordan-DeLaurenti, M., et al. Jordan-Delaurenti & Associates, Inc. UMTA-IT-06-0256-82-1, December 1981.

The objective of this study was to provide the transit industry with up-to-date information on the recruitment, testing, selection, and training practices currently used by transit systems that received training in the University of Chicago test batteries validated for male and female bus operators. This report presents a literature review, the methodology and demographic characteristics of the respondent group in the survey, and the conclusions and recommendations of the study. This survey analyzed the selection practices of 97 transit systems in the United States. A 92 percent response to the survey was received from 39 large, 27 medium, and 31 small transit systems. The large population represented 85 percent of all publicly owned transit systems in the United States with over 300 bus operators. The report states that: 1) there is widespread use of interviews, testing, and training as screening tools in bus operator selections; 2) the University of Chicago Battery was used by 65 percent of systems surveyed; and 3) the systems that used the Battery in 1980 hired 44 percent of the bus operators. Recommendations are made to management to: standardize the interviewing process; train interviewers; decrease the number of applications screened in proportion to the number of bus operators hired to a ratio of 8:1; and evaluate the use of Battery in a systematic way in regard to absenteeism, turnover, accident rate, and promotional potential. Related reports are: National Validation of a Selection Test Battery for Male Transit Bus Operators, June 1976, PB 283-709, A16 and A Validation and Analysis of Selection Procedures for Male and Female Bus Operators, April 1980, PB 80-222011, A07.

NTIS No. PB 82-192972 Price A06

Transit Operations Planning: Existing Training Courses.

Mundle, S. R., et al. Simpson & Curtin, Division of Booz, Allen & Hamilton, Inc., in association with Comsis Corporation and the Transportation Center of the University of Tennessee. UMTA-IT-09-9011-81-1, July 1981, 77p.

This is the first interim report of the study entitled Development and Testing of a Training Course in Basic Transit Operations Planning. The purpose of the study is to develop a training course in applying transit operations planning skills and techniques. This document should be useful to transit systems in the design of their training programs. This interim report reviews and presents existing training materials available from transit operators, Federal and State agencies, universities, and professional organizations. The purpose of this review is to identify available training courses and reference materials and to examine the specific subject areas addressed by each. This review of training materials will be used in the development of a transit operations training course in subsequent tasks. The text of this report is accompanied by a series of appendices that contain profiles of the identified training courses. For each course, the following is provided: sponsor; name, address, and phone number of a contact person; author(s); training objectives; course description; topic outline; and availability.

NTIS No. PB 81-247207 Price A05

16. TRANSPORTATION PRODUCTIVITY AND EFFICIENCY

Comparative Analysis of Transit Performance.

Anderson, S. C. and G. J. Fielding. University of California at Irvine, Institute of Transportation Studies and School of Social Sciences. UMTA-CA-11-0020-82-1, January 1982, 95p.

This research tests the usefulness for performance analysis of data resulting from Section 15 of the Urban Mass Transportation Act of 1964, as amended. The 1978-79 statistics were used to validate a framework for performance analysis based upon efficiency and effectiveness. The purposes for examining the Section 15 data were to: 1) assess data reliability; 2) develop a small set of performance indicators; and 3) produce a classification of bus systems based upon inherent characteristics. Nine dimensions of performance, developed from 60 measures, were used to develop a performance index that can be applied to individual transit properties. This report provides a brief history of Section 15 as well as its usefulness. The authors state that: 1) this study successfully tests the hypothesis that 48 indicators can be reduced to a set of 9 representing the input, output, and consumption dimensions of transit performance; and 2) despite the inadequacies found in the data collected in 1978-79, methods were developed that can help managers and administrators to use Section 15 data to improve transit management. The National Urban Mass Transportation Statistics First Annual Report is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, GPO Stock No. 050-014000021-5, $8.50 and the Second Annual Report is available from the Transportation Systems Center, Office of Technology Sharing, Cambridge, Massachusetts 02142.

NTIS No. PB 82-196478 Price A05

REPORT AVAILABILITY

The reports on the preceding pages may be purchased from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161 (703) 487-4650.

Loan copies of these reports have been deposited with the TRISNET Regional Centers at: U.S. Department of Transportation Library, 400 Seventh Street, S.W., Room 2130, Washington, D.C. 20590; Northwestern University, Transportation Library, Evanston, Illinois 60201; and University of California at Berkeley, Institute of Transportation Studies Library, 412 McLaughlin Hall, Berkeley, California 94720.

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Issue 8

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UMTA SECTION 8/9 TECHNICAL REPORT INDEX
MAY-JUNE 1982

This Section 8/9 Index is intended to serve as a guide to the technical study reports sponsored by the Urban Mass Transportation Administration of the U.S. Department of Transportation, Washington, D.C., in accordance with Section 8 of the Urban Mass Transportation Act of 1964, as amended.

Section 8/9 provides for contracts and grants to states and local public agencies for the planning, engineering, designing, and evaluation of urban mass transportation projects; the development of regional transportation plans; and various other technical studies. Section 8/9 activities may include: 1) studies relating to management, operation, capital requirements, and economic feasibility of transit projects; 2) preparation of engineering and architectural surveys, plans, and specifications; 3) evaluation of previously funded projects; 4) similar activities preliminary to the construction of, or improved operation of mass transportation systems, facilities, or equipment. Section 8/9 funds are generally available to transit operators and to regional and metropolitan planning agencies.

AVAILABILITY OF SECTION 8/9 REPORTS

The Section 8/9 technical reports that are listed are not available from the National Technical Information Service (NTIS). Loan copies have been deposited with the TRISNET Regional Centers at the following Libraries:

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Telephone: (202) 426-1792

Transportation Library
Northwestern University
Evanston, Illinois 60201
Telephone: (312) 492-5273

Institute of Transportation Studies Library
University of California at Berkeley
412 McLaughlin Hall
Berkeley, California 94720
Telephone: (415) 642-3604

CONNECTICUT

Employee Journey-To-Work Study.
Wilbur Smith & Associates, prepared for Southwestern Regional Planning Agency. May 1982, CT-09-0029.
Connecticut, Southwestern

Regional Planning Bulletin: Options for Public Transportation in Ridgefield, Connecticut. Bulletin No.19. Final Report.
Keyes Associates, prepared for the Town of Ridgefield & Housatonic Valley Council of Elected Officials. April 1982, CT-09-0028.
Connecticut, Ridgefield

A Review of Half Fare Programs for the Elderly and Handicapped in the Tri-State Region.
Ketron, Inc., formerly Applied Resources Integration, Ltd., prepared for Tri-State Regional Planning Commission. June 1981, NY-09-0046.
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New Jersey
New York

NEW JERSEY

A Review of Half Fare Programs for the Elderly and Handicapped in the Tri-State Region.
Ketron, Inc., formerly Applied Resource Integration, Ltd., prepared for Tri-State Regional Planning Commission. June 1981, NY-09-0046.
Connecticut
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New York

Work Methods and Manpower Utilization - PATH Car Equipment Division - Phase II.
Tri-State Regional Planning Commission, Port Authority of New York and New Jersey, and Port Authority Trans-Hudson Corporation. October 1979, IT-09-0046.
New Jersey, Urban Communities
New York, New York City

NEW YORK

Commercial Streets Transportation Improvements Project.
New York City Department of City Planning, prepared for Tri-State Regional Planning Commission. January 1982, NY-09-0046.
New York, New York City

Computer Assisted Scheduling: Survey and Recommendations for the New York Metropolitan Transportation Authority.
Sage Management Consultants, prepared for the New York Metropolitan Transportation Authority and Tri-State Regional Planning Commission. September 1981, NY-09-0046.
New York, New York Metropolitan Transportation Agencies

Computer Assisted Scheduling: Survey and Recommendations for the New York Metropolitan Transportation Authority. Appendices.
See information given above

Grand Central Alternative: Long Island Rail Road East Midtown Terminal.
Parsons Brinckerhoff and Gibbs & Hill, prepared for Metropolitan Transportation Authority and Tri-State Regional Planning Commission. September 1976, IT-09-0037.
New York, New York City

Queen's Subway Expansion Program. Impact Area Study - Route 131-B.
New York City Planning Commission and New York City Department of City Planning, prepared for Tri-State Regional Planning Commission. September 1981, IT-09-0037.
New York, New York City
New York, Queens

Reduction of Subway Noise and Vibration. Final Report.
New York City Transit Authority, prepared for Tri-State Regional Planning Commission. July 1981, IT-09-0069.
New York, New York City

A Review of Half Fare Programs for the Elderly and Handicapped in the Tri-State Region.
Ketron, Inc., formerly Applied Resource Integration, Ltd., prepared for Tri-State Regional Planning Commission. June 1981, NY-09-0046.
Connecticut
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New York

User Survey of Surface Transit Information Systems.
Kaeser & Wilson Design, Ltd., prepared for Tri-State Regional Planning Commission. October 1981, IT-09-0089.
New York, New York City

Work Methods and Manpower Utilization - PATH Car Equipment Division - Phase II.
Tri-State Regional Planning Commission, Port Authority of New York & New Jersey, and Port Authority Trans-Hudson Corporation. October 1979, IT-09-0046.
New Jersey, Urban Communities
New York, New York City

PENNSYLVANIA

Commuter Rail Contingency Plans: Alternative Mobility Options for the Delaware Valley.
Orth-Rodgers & Associates, Inc., in association with Transportation & Distributive Associates, Inc., prepared for the Delaware Valley Regional Planning Commission. December 1981, PA-09-0080.
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INTRODUCTION

The **Urban Mass Transportation Abstracts** is published bi-monthly by the Transit Research Information Center (TRIC) of the Urban Mass Transportation Administration (UMTA). It contains abstracts of the results of the Research, Development and Demonstrations, Technical Studies, and University Research projects (Sections 6, 8/9, and 11 of the Urban Mass Transportation Act of 1964, as amended) sponsored by UMTA. The bi-monthly Abstracts are arranged into 17 subject classifications, and within each classification, the arrangement is by title. Reports listed within the Abstracts are available from the National Technical Information Service (NTIS). Order and loan information is provided at the end of each issue. Each abstract shown in this report provides information on the report title, the personal and organizational author(s), source of UMTA funding, date of publication, the NTIS order number, and the NTIS price code. A cumulative Retrieval Term Index will appear at the end of every third issue of the bi-monthly Abstracts. In addition, the bi-monthly Abstracts also include a list of recent Section 8/9 Technical Studies acquisitions. The Section 8/9 reports are arranged by states. These reports are not available from NTIS. Loan copies have been deposited with the TRISNET Regional Centers. Questions and comments concerning these publications or the reports cited within them should be addressed to: U.S. Department of Transportation, Urban Mass Transportation Administration, Information Services, Room 6432, 400 Seventh Street, S.W., Washington, D.C. 20590, (202) 426-9157.

UMTA's annual volume, **Urban Mass Transportation Abstracts**, has been discontinued; it has been incorporated into the UMTRIS (Urban Mass Transportation Research Information Service) data base. UMTRIS was developed in 1981 within the National Research Council, Transportation Research Board (TRB), under contract to the Urban Mass Transportation Administration (UMTA). The UMTRIS computerized data system incorporates information on planning, designing, maintaining, operating, managing and financing all modes of public transit including bus, trolley bus, light and heavy rail, advanced guideway systems, taxi and vanpool services, ferries, and local air service. The first Bibliography (in two volumes) produced by UMTRIS has been published; it contains 7064 citations and appropriate indexing for citations added to the Transportation Research Information Service (TRIS) data base between 1974 and 1980. Citations include technical reports, journal articles, handbooks, statistical sources, computer programs, and other information sources from both U.S. and international sources. **Volume 1: Abstracts** contains the citations arranged in 28 categories. **Volume 2: Index** contains more than 3400 subject terms used for the indexing along with appropriate cross references to citations to Volume 1. The Bibliography (in two volumes) is titled **Urban Mass Transportation Abstracts-Cumulative Bibliography 1974-1980** and has been distributed by the Transportation Research Board, 2101 Constitution Avenue, N.W., Washington, DC 20418.

UMTA ABSTRACTS SUBJECT CLASSIFICATION

01. Conventional Transportation Services

02. Center City/Traffic Restraints

03. Energy and Environment

04. Fares/Pricing and Service Innovations

05. Financing

06. Land Use

07. Non-Urban and Low-Density Area Transportation

08. Paratransit Systems and Services

09. Planning, Policy and Program Development

10. Political Processes and Legal Affairs

11. Safety/Product Qualification and Security

12. Socioeconomics

13. Technology Development and Deployment

    A. Bus and Paratransit Vehicle Technology
    B. Bus and Paratransit Operational Technology
    C. New Systems and Automation
    D. Rapid Rail Vehicles and Systems
    E. Commuter Rail Vehicles and Systems
    F. Light Rail Vehicles and Systems
    G. Construction/Tunneling Technology

14. Transportation of Disadvantaged/Special-User Groups

15. Transportation/Transit Management

16. Transportation Productivity and Efficiency

17. Urban Goods Movement

UMTA-SPONSORED REPORTS AVAILABLE AT THE NATIONAL TECHNICAL INFORMATION SERVICE

01. CONVENTIONAL TRANSPORTATION SERVICES

Development of Transit Bus Component Failure Statistics From Conventional Bus Card Records. Executive Summary.

Kosinski, M., J.F. Foerster, and F.G. Miller. University of Illinois at Chicago Circle, Urban Transportation Center. UMTA-IL-11-0028-82-1, February 1982, 6p.

The purpose of this report is to demonstrate the feasibility and utility of determining the probabilities of failure for various major bus components and systems from existing maintenance records. The process for determining the failure probability distributions is demonstrated using maintenance data from the Alameda-Contra Costa Transit District (AC Transit). This process is applicable at other transit systems where maintenance records are available. This final report consists of 5 sections. Section 2 describes the development of the data base used to demonstrate the process. Included in Section 2 is background information of AC Transit and a detailed description of data obtained from existing maintenance records. Section 3 describes the process of analyzing the data, and it includes the determination of the miles to failure for each component, and the utilization of this information to determine failure probabilities as a function of mileage and the derivation of cumulative failure probability distributions. Section 4 provides a summary and evaluation of data developed in the analysis. Section 5 discusses the results and provides conclusions drawn from the analysis of failure data. Section 6 restates the procedure for extracting data from existing records, analyzing the data and evaluating maintenance intervals from the information obtained. This report concludes that standard bus maintenance record-keeping procedures are compatible with the requirements of reliability analysis techniques.

NTIS No. PB 82-218686 **Price A02**

Development of Transit Bus Component Failure Statistics From Conventional Bus Card Records. Final Report.

Kosinski, M., J.F. Foerster, and F.G. Miller. University of Illinois at Chicago Circle, Urban Transportation Center. UMTA-IL-11-0028-82-2, February 1982, 63p.

See abstract cited above.

NTIS No. PB 82-218694 **Price A04**

Lift-Equipped Bus Service in Seattle, Washington. Final Report.

Koffman, D. Crain & Associates, Inc., under contract to Transportation Systems Center. UMTA-MA-06-0049-81-14, March 1982, 175p.

The Municipality of Metropolitan Seattle (Metro) provides transit service to most of King County, Washington, including the city of Seattle. Metro operates 194 routes using a fleet of 1047 coaches, including 151 articulated buses and 109 electric trolley buses. In August 1981, Metro had 259 lift-equipped buses and 16 lift-equipped trolley buses. In 1982, Metro expects to receive 202 lift-equipped buses. This evaluation report is a case study of Metro's successful fixed-route, accessible bus service initiated in August 1979. The report contains the results of Metro's experience, focusing on the months of June 1980-August 1980, but including some data from the period of February 1980-July 1981. Compared to other accessible bus service systems, Metro's service has been very successful in terms of planning, reliability, ridership, lift operations, policies and procedures and costs. The purpose of this case study was to document the successful lift-equipped bus service in Seattle, Washington, in order to determine the reasons for its success and the implications for future lift-equipped bus service. The report shows that the Lift-U lifts have had a low failure rate, thus enhancing the reliability and success of the service.

NTIS No. PB 82-190265 **Price A08**

Recreational Transit Service to the California Santa Monica Mountains. Final Report.

Webb, P. Crain & Associates, Inc., under contract to the Transportation Systems Center. UMTA-CA-06-0142-82-1, April 1982, 150p.

The Southern California Association of Governments (SCAG), in conjunction with the Santa Monica Mountains Conservancy (SMMC) tested the feasibility of providing a seasonal recreation transit service from low income urban areas in and near the city of Los Angeles to six parks located in the Santa Monica Mountains west of Los Angeles. The project was intended to measure the demand for such service and to demonstrate its economic and operational feasibility. This report describes a two-year demonstration of a subscription transit service to recreational areas outside a major metropolitan area. This report focuses on the second year (1980) of the demonstration, and it supplements the Interim Report (PB 80-183056), published in January 1980. This report contains: an overview of the objectives, innovations, and key evaluation issues; a description of differences/similarities between the first and second years' operations; results of the 1980 evaluation and comparison with 1979; project impacts and problems; and a description of potential future service in both Los Angeles and other settings. The report concludes that demand for the service was higher in 1980 than 1979, and that transit service was less expensive in 1980, largely due to the lower costs of private operators and the elimination of an extra operator required by RTD in 1979. Appendix F provides the specific data collection activities employed to evaluate the six key issues identified in the demonstration.

NTIS No. PB 82-230483 **Price A07**

02. CENTER CITY/TRAFFIC RESTRAINTS

Consumer Preferences for Alternative Transit Service Concepts at Regional Shopping Centers: An Initial Assessment.

Schneider, J.B., et al. University of Washington, Departments of Civil Engineering & Urban Planning. UMTA-WA-11-0008-82-1, October 1981, 80p.

The purpose of this study was to examine and describe the preferences of people who work and shop at large regional malls for various alternative transit service concepts and relates these preferences to indices of shopping behavior, socioeconomic, and demographic status. The report presents some results obtained from interviews with 2070 persons at 17 regional malls throughout the United States. Preferences were estimated for each of 20 different demand segments and 36 different transit service concepts. Results are also derived for malls of different types in various parts of the country. The authors state that both mall operators and transit system operators can use the findings of this report to design the type of transit service that would be most acceptable to groups of shoppers or employees. Results of this report indicate that fixed-route service is preferred to Dial-A-Ride, and that short waits, short walks, fast rides, and low fares are almost equally important. The report concludes that it is unlikely that one type of transit service would fit well any of the situations examined.

NTIS No. PB 82-208711 **Price A05**

03. ENERGY AND ENVIRONMENT

Transportation Air Quality Analysis - Sketch Planning Methods. Volume 1: Analysis Methods.

Cambridge Systematics, Inc. UMTA-UPM-20-82-1, December 1979, 284p. Cross reference number is EPA 400/1-800-001a. (2 rpts).

This handbook (in two volumes) provides a range of quantitative analytical techniques to evaluate transportation measures and packages of alternative measures, and is designed to assist state and local air pollution control agencies to perform transportation-air quality planning. Analytical methodologies are descrived (in Volume 1) and illustrated (in Volume 2) for use by Metropolitan Planning Organizations and other state and local transportation agencies in analyzing the air quality potential of candidate urban transportation measures. As sketch planning techniques, the methods are designed to produce first-cut estimates of a proposed transportation measure's impact for a relatively small investment of time and effort. Quantitative methods oriented to auto restricted zones, high occupancy vehicle priorities, transit improvements, parking programs, carpool/vanpool incentives, and staggered work hours are provided. The methods use worksheet, programmable calculator, and computerized approaches to apply disaggregate behavioral models. They can be used to predict traveler demand as a function of transportation system characteristics, transportation facility operations as a function of their usage and their physical characteristics, and special impacts including vehicular emissions, fuel consumption, and operating costs. Guidelines are provided both to those responsible for designing the transportation-air quality analysis approaches in specific local areas, and to those who will carry out these analyses.

NTIS No. PB 80-158702 **Price A13**

03. ENERGY AND ENVIRONMENT

Transportation Air Quality Analysis - Sketch Planning Methods.
Volume 2: Case Studies.

Cambridge Systematics, Inc. UMTA-UPM-20-82-2, December 1979, 334p. Cross reference number is EPA 400/1-800-001b. (2 rpts).

See abstract citer earlier (p.63, 03).

NTIS No. PB 80-158710 **Price A15**

07. NON-URBAN AND LOW DENSITY AREA TRANSPORTATION

Coordinated Nonurbanized Area Transit Development Procedures.
Final Report.

Keough, M., J. Holec, and J. Bennett. Peat, Marwick, Mitchell & Co., in association with JHK & Associates. UMTA-CA-09-8004-82-1, March 1982, 119p.

The intent of this project was to assist the California Department of Transportation (CALTRANS) in the development of an analytical tool for the use of California planners and policymakers and others interested in improving local, general public transit in the State's nonurbanized areas. This analytical tool is intended to be used in cost considerations and impacts of alternative strategies to systematically increase the availability of transit services in these nonurbanized areas. The key objectives of this project were: 1) to develop a classification structure to categorize the counties according to the amount of nonurbanized area transit service provided by the transit systems in the counties that would be eligible to receive Section 18 funds; and 2) to develop a method for estimating the ridership, revenue, and cost impacts of programming the Section 18 State Discretionary Reserve Funds to systematically increase the amount of nonurbanized area transit service provided in the counties. This report provides: an overview of public financial support of transit, including federal funding, administration of Section 18 program, and California's major funding program; a description of California's inventory of nonurbanized area, local, general public transit systems; a description of the matrix to classify the counties by demographic/socioeconomic traits; and a description of the procedure developed to quantify the impacts of alternative State approaches for distributing Section 18 funds.

NTIS No. PB 82-221227 **Price A06**

08. PARATRANSIT SYSTEMS AND SERVICES

Dial-A-Ride Vehicle Time Analysis and Vehicle Productivity.
Final Report.

Chung, C.C. The MITRE Corporation. UMTA-VA-06-0024-76-7, June 1976, 98p.

In this report, productivity measures based on vehicle-hours that start from the moment a vehicle leaves the garage until the moment it returns to the garage are selected to evaluate alternative operational strategies.

This report is a study of vehicle productivity and the field operations of Dial-A-Ride systems. Components of the vehicle-time are analyzed to determine their importance in affecting vehicle productivity. Management operational policies from two different Dial-A-Ride systems are studied (Gaithersburg, Maryland, and Rochester, New York). Gaithersburg operates a small, manual system in a suburban community with limited public transit service. The Rochester system is considerably larger and partially automated; it operates in a community served by a multimodal conventional transit system. The Gaithersburg system has an above average vehicle productivity of 8.1 passengers per vehicle-hour, and the Rochester system has a vehicle productivity of 5.5. The vehicle-time data collected from these two Dial-A-Ride operations indicate that Gaithersburg has higher demand density, higher group pickup and group drop-off factors, lower interstop running times, and a lower percentage of non-productive time than the Rochester system. Important operational strategies for improving vehicle productivity stated in this report are those that lead to reduced interstop running time, reduced pickup dwell time, increased group pickup and group drop-off factors, and reduced nonproductive time.

NTIS No. PB 82-237918 **Price A05**

Taxi Regulatory Revision in Portland, Oregon: Background and Implementation. Interim Report.

Gelb, P.M., S.B. Colman, and R.M. Donnelly. DeLeuw, Cather & Company, under contract to Transportation Systems Center. UMTA-MA-06-0049-80-18, September 1980, 100p.

This report presents the historical background and implementation of taxi regulatory revisions adopted by the Portland City Council. Portland first relaxed its entry restrictions in March 1979, and provided greater latitude in rate setting by allowing flat fares, discount, and contractual rates. The authority for qualifying operators and other regulatory functions was vested in a new official--the Taxi Supervisor. In April 1980, the Council re-imposed some restrictions on entry, including consideration of public need for service and the current ratio of licenses to population. It also transferred authority from the Taxi Supervisor back to the City Council. Subsequent changes adopted in June 1980 stiffened requirements for driver permits and required operators to submit financial and operating data. This report summarizes the historical background and implementation of these regulatory changes, compares the old and new regulations, and describes the local industry prior to and during the regulatory change process.

NTIS No. PB 82-218355 **Price A05**

Coordinated Nonurbanized Area Transit Development Procedures. Final Report.

Keough, M., J. Holec, and J. Bennett. Peat, Marwick, Mitchell & Co., in association with JHK & Associates. UMTA-CA-09-8004-82-1, March 1982, 119p.

See abstract cited earlier (p.64, 07).

NTIS No. PB 82-221227 **Price A06**

An Examination of Coordination Methods for Transportation Planning Activities.

Schmitt, R., J. Weitman, and E. Beinborn. University of Wisconsin-Milwaukee, Center for Urban Transportation Studies. UMTA-WI-11-0007-82-1, April 1982, 105p.

The purpose of this study was to examine alternative means by which Metropolitan Planning Organizations (MPOs) coordinate transportation planning activities in different areas of the country. The study involved an inventory of the MPOs representing the 100 largest metropolitan areas in the U.S. The inventory provided a cross-sectional view of transportation planning in these areas by providing information on the range of activities conducted by MPOs, types of organizational structures employed, funding sources, responsibilities, and types of tasks performed. In addition, background information on the MPOs was used to select several locations for in-depth study. In this study, MPOs were found to generally perform effectively as a forum for decision-making. Relationships with transit agencies and units of local government were typically good, especially where the MPO has adopted a service-oriented philosophy towards these agencies. Relationships between MPOs and states are more complex with different degrees of local autonomy.

NTIS No. PB 82-223991 **Price A06**

Transportation Air Quality Analysis - Sketch Planning Methods. Volume 1: Analysis Methods.

Cambridge Systematics, Inc. UMTA-UPM-20-82-1, December 1979, 284p. Cross reference number is EPA 400/1-800-001a. (2 rpts).

See abstract cited earlier (p.63, 03).

NTIS No. PB 80-158702 **Price A13**

Transportation Air Quality Analysis - Sketch Planning Methods. Volume 2: Case Studies.

Cambridge Systematics, Inc. UMTA-UPM-20-82-2, December 1979, 334p. Cross reference number is EPA 400/1-800-001b. (2 rpts).

See abstract cited earlier (p.63, 03).

NTIS No. PB 80-158710 **Price A15**

Urban Transportation Planning System Lexicon.

Watkins, R.H., and W.R. Wolfe. Rock Creek Associates, and Price Williams Associates, Inc. UMTA-UPM-20-81-2, July 1981, 153p. Cross reference number is UMTA-MD-06-0049-82-1.

09. PLANNING, POLICY AND PROGRAM DEVELOPMENT

Created as a dictionary reference for the user of the Urban Transportation Planning System (UTPS), this lexicon is a glossary of nearly 1000 words and phrases in common use among transportation planners who perform computer-aided analyses of multimodal transportation networks. Its principal purpose is to assist the user of UTPS computer programs. It consists primarily of definitions of technical terms that appear in UTPS documentation. In addition, it contains some terms used in the definitions of the primary terms. Although this lexicon neither is nor intends to be exhaustive, it does nevertheless cover a wide spectrum of the technical vernacular of the transportation planner. It is the most complete transportation planning glossary in print. The authors state that this is a good reference document for all planners. It is probably the best single place to look for introductory definitions to any words in land-use, transportation, or operational transit planning. It is recommended as a valuable book for anyone in the transportation field.

NTIS No. PB 82-230079 **Price A08**

11. SAFETY/PRODUCT QUALIFICATION AND SECURITY

Independent Assessment of Safety Aspects of an Automated Mixed Traffic Transit System. Final Report.

Battelle Columbus Laboratories. UMTA-OH-06-0030-82-1, April 1982, 76p.

This is the final report for the study titled Independent Assessment of Safety Aspects of an Automated Mixed Traffic Transit (AMTT) System. It documents the nature and results of the work performed during the course of this study. The AMTT concept is considered a viable alternative form of public transportation for selected applications. This report discusses the results of an assessment of safety aspects and issues associated with the AMTT vehicle system that is under development by the Jet Propulsion Laboratory (JPL). The assessment included three specific activities: 1) safety assessment of the control system; 2) safety assessment of the vehicle design; and 3) survey of possible "product liability" issues. This study made extensive use of reports authorized by various individuals and organizations. Because of the specific nature of the scope of work associated with the three activities which comprise this study, differing approaches were used. Separate sets of conclusions and recommendations are provided for each of these three activities. The results are intended to provide guidance to future development efforts.

NTIS No. PB 82-209156 **Price A05**

13. TECHNOLOGY DEVELOPMENT AND DEPLOYMENT

Urban Mass Transportation Abstracts. Volume No. 7 - December 1980.

U.S. Department of Transportation, Urban Mass Transportation Administration, Information Services Staff. UMTA-TRIC-80-1, December 1980, 180p.

13. TECHNOLOGY DEVELOPMENT AND DEPLOYMENT

This is the seventh and final edition of the annual volume of the Urban Mass Transportation Abstracts. The document reflects UMTA's continuing commitment to the dissemination of technical report information to government, state, and local transportation agencies; private industry; and the general public, and it is intended to serve as an index to reports generated under contract to UMTA. It is a compilation of abstracts of all reports published in 1980 describing results of research, development, and demonstration activities of UMTA. This Volume, previous Volumes and the reports abstracted within it, can be obtained from the National Technical Information Service (NTIS). (See next abstract.)

NTIS No. PB 82-203308 **Price A09**

Urban Mass Transportation Abstracts Cumulative Bibliography, 1974-1980.
Volume 1: Abstracts.

Transportation Research Board, Urban Mass Transportation Research Information Service (UMTRIS). UMTA-DC-06-0259-82-1, April 1982, 937p (2 vols).

UMTA's annual volume, cited above and titled **Urban Mass Transportation Abstracts**, has been discontinued; it has been incorporated into the UMTRIS data base. UMTRIS was developed in 1981 within the National Research Council, Transportation Research Board, under contract to UMTA. The UMTRIS computerized data system incorporates information on planning, designing, maintaining, operating, managing,and financing all modes of public transit including bus, trolley bus, light and heavy rail, advanced guideway systems, taxi and vanpool services, ferries, and local air service. The first Bibliography (in two volumes) produced by UMTRIS has been published; it contains 7064 citations and appropriate indexing for citations added to the Transportation Research Information Service (TRIS) data base between 1974 and 1980. Citations include technical reports, journal articles, handbooks, statistical sources, computer programs, and other information sources from both U.S. and international sources. **Volume 1: Abstracts** contains the citations arranged in 28 categories. **Volume 2: Index** contains more than 3400 subject terms used for the indexing along with appropriate cross references to citations to Volume 1.

REPORT AVAILABILITY: The Bibliography (in two volumes) has been distributed by the Transportation Research Board, 2101 Constitution Avenue, NW, Washington, DC 20418.

13C. NEW SYSTEMS AND AUTOMATION

Baltimore Downtown People Mover Feasibility Study.
Final Report.

Marvland Department of Transportation, co-authored with Gannett Fleming/Harmon Associates, N.D. Lea & Associates, Inc., and The Leon Bridges Company.
UMTA-MD-09-0014-82-1, June 1981, 276p.

13C. NEW SYSTEMS AND AUTOMATION

This report summarizes the technical analysis of the feasibility of implementing a Downtown People Mover (DPM) in the Baltimore Central Business District (CBD). The study addresses the following questions: 1) Does a DPM meet local goals and objectives? 2) Does it promote economic development in the retail district and other areas? 3) Will it serve the transportation needs of downtown Baltimore? 4) Will the DPM system be financially viable? 5) Is a DPM acceptable to local citizens and business organizations? and 6) Will the environmental impacts and visual impacts of a DPM be acceptable and can negative impacts be mitigated? After 18 months of study, the results of this inquiry are complete and positive. A DPM can be buildt in downtown Baltimore that will achieve the goals established. The Baltimore DPM will be a completely automated circulation and distribution system designed to extend the service area of the regional transit system and provide improved transportation within the CBD.

NTIS No. PB 82-207648 **Price A13**

Independent Assessment of Safety Aspects of an Automated Mixed Traffic Transit System. Final Report.

Battelle Columbus Laboratories. UMTA-OH-06-0030-82-1, April 1982, 76p.

See abstract cited earlier (p. 67, 11).

NTIS No. PB 82-209156 **Price A05**

13D. RAPID RAIL VEHICLES AND SYSTEMS

Accessibility for Level-Entry Urban Rail Systems. Final Report.

Edelman, J., and F.T. McInernev. Technology Research & Analysis Corp., under contract to Transportation Systems Center. UMTA-MA-06-0025-82-3, April 1982, 106p.

The objective of this study was to develop a comprehensive analysis of the clearance gaps that occur between railcar doorways and station platforms, to investigate the relationship of these gaps to elderly and handicapped (E&H) passenger accessibility, and to evaluate alternative solutions to the impediment presented by these gaps. This report examines the technical issues associated with improving platform to vehicle accessibility. Section 2.0 examines the factors constituting horizontal and vertical gaps at the car-to-platform interface and also suggests guidelines for establishing gap standards. Section 3.0 reviews gaps on existing systems, and reviews the state of the art for gap filling devices. Section 4.0 presents the results of the Veteran's Administration Rehabilitation and Engineering Center studies, and develops the functional requirements for implementation of solutions to the gap problem. Section 5.0 evaluates generic and specific designs for passive (fixed) and active (controlled motion) gap fillers and discusses the manually operated bridgeplate as an alternative. The report states that a review of existing rail transit systems reveals that the newer rapid rail systems (BART, MARTA, and WMATA) have the lowest gap magnitudes and are considered accessible. The report proposes that the participation of train crew coupled with training for the E&H in wheelchair operation could form the basis for an adequate solution to the gap problem.

NTIS No. PB 82-225558 **Price A06**

13D. RAPID RAIL VEHICLES AND SYSTEMS

Benefits of Railcar Standardization.

McGean, T.J., D.B. Eldredge, and W. Frost. N.D. Lea & Associates, Inc. UMTA-IT-06-0229-82-2, February 1982, 80p.

The purpose of this paper is to review UMTA's rail standardization program with regard to its value to the transit industry and to quantify the benefits of ongoing and planned standardization efforts concerned with procurement procedures, specifications, and hardware interfaces. This report describes a review of the UMTA railcar standardization program, including estimates of the savings in capital and operating costs that will be possible by standardization. The review concludes that standardization has the potential for significant reductions in both capital costs and maintenance costs, representing savings to the Federal Government and local agencies of up to $30-50 million annually. Benefits of standardization include reducing the cost of major car subsystems, facilitating joint car buys, savings in spare parts costs and inventory, improved equipment reliability, and simplified maintenance. This paper includes a brief summary of the history of rail standardization in the U.S., and a description of standardization activities in other transportation industries (mainline railroads, automotive equipment, airlines). The paper also presents a description of the policies towards standardization in Germany.

NTIS No. PB 82-221615 **Price A05**

Handbook of Urban Rail Noise and Vibration Control: Executive Digest.

Saurenman, H.J., J.T. Nelson, and G.P. Wilson. Wilson, Ihrig & Associates, under contract to Transportation Systems Center. UMTA-MA-06-0099-82-2, February 1982, 60p (2 rpts).

This Executive Digest presents a summary of the information that is contained in the Handbook of Urban Rail Noise and Vibration Control. The Handbook is a comprehensive review of the state-of-the-art in the field. The Digest is intended for those who would like an overview of the Handbook's contents. The text provides information useful in integrating noise and vibration control into transit system planning and operations. The tables summarize technical information contained in the Handbook on control treatments for wayside, vehicle, station, and groundborne noise and vibration. This Digest is directed mainly toward transit system managers, engineers, and designers. Included in the Digest is a description of the rail noise problem; a discussion of noise control criteria and guidelines; approaches to noise control implementation; a description of four main areas of concern; and a compilation of treatments for noise and vibration problems.

NTIS No. PB 82-220427 **Price A04**

Handbook of Urban Rail Noise and Vibration Control. Final Report.

Saurenman, H.J., J.T. Nelson, and G.P. Wilson. Wilson, Ihrig & Associates, under contract to the Transportation Systems Center. UMTA-MA-06-0099-82-1, February 1982, 794p (2 rpts).

This Handbook is a guide to the prediction and control of all types of urban rail transit noise, ranging from train noise heard by the community at large, to noise in maintenance shops heard only by transit employees. The topics covered include: 1) criteria for transit related noise and vibration; 2) general characteristics of urban rail noise and vibration; 3) techniques and equipment for measurement of noise and vibration; 4) control of transit vehicle noise and vibration; 5) control of community noise; 6) prediction and control of groundborne noise and vibration; 7) noise in transit stations; 8) noise from station ancillary equipment; 9) noise in and around yards and shops; 10) wheel squeal noise; and 11) control of pressure transients in subway tunnels. Bibliographic information is provided for readers seeking more detailed information.

NTIS No. PB 82-220757 **Price A99**

Limiting Forces on Transit Trucks in Steady-State Curving.
Interim Report.

Greif, R., and H. Weinstock. U.S. Department of Transportation, Transportation Systems Center. UMTA-MA-06-0025-82-1, May 1982, 58p.

The Wheel/Rail Dynamics Project of the Urban Rail Systems Program is directed toward the development of technical data that can be applied to improve performance specifications for transit car trucks and components to permit reductions in maintenance costs and wheel/rail noise while providing acceptable ride quality and safety. This study develops conservative bounds on wheel/rail forces and flange forces for several types of rigid and flexible trucks in steady-state curving conditions. The analysis presented provides closed-form relations for estimating forces, truck angle of attack, creep force saturation and sliding conditions as a function of truck geometry and track parameters. The wheel profiles are modeled by conical wheel treads with vertical wheel flanges. Limiting case transit truck configurations are analyzed to provide comparison of the benefits achievable in curving performance from modification of truck geometry. These configurations include: rigid truck; parallelogramming truck; radial truck; guided steering truck; and compensating steering truck. Results of this report can be used in the design and specification of trucks for transit or railroad operations to estimate the wheel/rail interaction forces and slip behavior produced during curve negotiations.

NTIS No. PB 82-227398 **Price A04**

Rail Transit Train/Elevated Structure Dynamic Interactions.
Final Report.

Wormley, D.N., M.L. Nagurka, and G. Isaacs. Massachusetts Institute of Technology. UMTA-MA-06-0096-82-1, December 1981, 106p.

This study effort focused on the interaction between multiple car transit trains and elevated structures typical of a transit system. (Heavy rail transit is considered crossing elevated, simple span structures; such a system is under construction for the Dade County, Florida, transit system.) The main objective of this study is to determine the dynamic impact factors generated by the vehicle train crossing the span and the accelerations in the vehicles generated by span motion. A dynamic interaction model has been formulated for multicar trains of vehicles traversing elevated span guideways.

The model has been used to determine the dynamic loading impact factors generated by rail transit vehicles on elevated, simple span structures. Simulation programs have been developed to determine elevated guideway beam dynamic load impact factors and vehicle passenger compartment accelerations for multicar rail transit trains traversing elevated span guideways. Resonant operating conditions have been identified which yield significant increases in dynamic load impact factors and vehicle accelerations. These resonant conditions are sensitive to vehicle speed, train length and span frequency and damping. Studies have been conducted for typical rail transit systems which indicated that several resonant speeds exist in the typical operating range of rail transit systems. Detailed studies have determined the influence of vehicle speed, train length, vehicle suspension properties and span frequency, length and damping on both dynamic load impact factors and vehicle accelerations.

NTIS No. PB 82-232166 **Price A06**

Station Platform-Railcar Threshold Gap Study.
Final Report.

Reichenberger, A.J. Veterans Administration Rehabilitation Engineering Center, under contract to Transportation Systems Center. UMTA-MA-06-0025-82-2, March 1982, 35p.

This study is part of a program to improve railcar accessibility for the handicapped riders. The purpose of this investigation was to gather data on: 1) the acceptable range of maximum gaps, which are various horizontal and vertical spacings in combination, which can be safely crossed by individuals in manually propelled or powered wheelchairs; 2) suitable techniques for safely and independently crossing such gaps in a wheelchair; 3) the abilities of persons in wheelchairs with different disabilities to safely and independently cross the gaps; and 4) the effects repeatedly crossing these gaps may have on the structural integrity (durability and life expectancy) of wheelchairs. Actual railcar station platform gaps measured in the course of the 321 studies varied from less than two inches wide and no vertical height difference to over six inches wide and a three or four-inch vertical differential. The results of these tests could be used in developing maximum vertical and horizontal gap criteria, and in assuming the need and operational feasibility of station-located or vehicle-mounted "gap fillers". This report examines the procedures used in performing the experiment, the subject profiles, and a summarization of the test results. The report concludes that special training in gap-crossing techniques and improved wheelchairs with equipment to overcome vertical barriers should make the transit environment more accessible to the handicapped.

NTIS No. PB 82-213505 **Price A03**

Train Crew Reduction for Increased Productivity of Rail Transit.
Executive Summary.

Vuchic, V.R., et al. University of Pennsylvania, Department of Civil & Urban Engineering. UMTA-PA-11-0023-82-1, February 1982, 6p (2 rpts).

See next abstract cited (p.73, 13D).

NTIS No. PB 82-225863 **Price A02**

13D. RAPID RAIL VEHICLES AND SYSTEMS

Train Crew Reductions for Increased Productivity of Rail Transit. Final Report.

Vuchic, V.R., et al. University of Pennsylvania, Department of Civil & Urban Engineering. UMTA-PA-11-0023-82-2, February 1982, 92p (2 rpts).

With the increases in wages since the 1950s, labor costs have become the dominant portion of operating costs for transit agencies. Efforts to increase productivity of operating labor have been successful on rail transit systems. For example, development of high-capacity articulated cars, provision of separated rights-of-ways and introduction of self-service fare collection have resulted in a 20-fold increase in productivity of light rail systems. This report focuses on labor productivity in operations of rail transit systems. The focus is on rail systems since rail modes have a potential to achieve an high level of labor productivity through utilization of modern operating practices that have not yet been introduced in many cities. The study shows that while the modern rail transit systems (Lindenwold Line, San Francisco BART, Atlanta's MARTA) have one-person train crews and thus very high productivity, most older streetcar, rapid transit and regional rail systems still have obsolete, inefficient labor practices. A systematic analysis of alternative ways of performing different duties shows that on many existing transit systems productivity of operating labor can be substantially increased through rather modest efforts.

NTIS No. PB 82-225871 **Price A05**

13E. COMMUTER RAIL VEHICLES AND SYSTEMS

Innovation in Urban Transportation: A Case Study. Final Report.

Morlock, E.K. University of Pennsylvania, Department of Civil & Urban Engineering. UMTA-PA-11-0022-82-1, November 1980, 75p.

The purpose of this report is to present an analysis of a successful innovation in urban passenger transportation introduced by the Chicago and North Western (CNW) Railway to provide suburban/commuter rail service. The study aims 1) to develop an understanding of factors that influence the performance of a public transportation system as a basis for identifying ways in which such systems can be modified so as to better serve travel needs at a reasonable cost, and 2) to nurture interest in developing methods of analysis that would aid in the creation of successful innovations. During the 1960s and 1970s, prior to take-over by a newly-formed regional transportation authority, the CNW provided rail passenger service that was equal to or better than that of other railroads in terms of service quality, while at the same time, it was experiencing both operating and capital costs that were considerably lower. With fare levels that were roughly equal to or in some cases, less than those of other commuter systems, CNW was able to cover all expenses and make a profit. The low costs can be traced to a coordinated set of innovations that touched almost every aspect of the service. While these were significant in terms of reducing costs, they also represented logical adaptations of known railroad systems and institutions. This study examines this innovation in the context of an overall framework by examining changes in transport technology or production processes.

NTIS No. PB 82-201005 **Price A04**

14. TRANSPORTATION OF DISADVANTAGED/SPECIAL-USER GROUPS

Accessibility for Level-Entry Urban Rail Systems. Final Report.

Edelman, J., and F.T. McInerney. Technology Research & Analysis Corp., under contract to Transportation Systems Center. UMTA-MA-06-0025-82-3, April 1982, 106p.

See abstract cited earlier (p.69, 13D).

NTIS No. PB 82-225558 **Price A06**

Lift-Equipped Bus Service in Seattle, Washington. Final Report.

Koffman, D. Crain & Associates, Inc., under contract to Transportation Systems Center. UMTA-MA-06-0049-81-14, March 1982, 175p.

See abstract cited earlier (p.62, 01).

NTIS No. PB 82-190265 **Price A08**

Station Platform-Railcar Threshold Gap Study. Final Report.

Reichenberger, A.J. Veterans Administration Rehabilitation Engineering Center, under contract to Transportation Systems Center. UMTA-MA-06-0025-82-2, March 1982, 35p.

See abstract cited earlier (p.72, 13D).

NTIS No. PB 82-213505 **Price A03**

15. TRANSPORTATION/TRANSIT MANAGEMENT

The Appropriate Measures of Productivity and Output for the Evaluation of Transit Demonstration Projects. Final Report.

Studenmund, A.H. SYSTAN, Inc., under contract to Transportation Systems Center. UMTA-MA-06-0049-81-9, March 1982, 18p.

Output and productivity, two economic concepts that have important applications in the evaluation of transportation demonstrations, are discussed in this paper. The focus of these discussions is on how the terms' typical definitions in transportation analysis differ from their accepted usages in the economic profession. Such definitional differences can lead to misunderstandings or to misleading conclusions drawn from demonstration results. This paper intends to stimulate discussion of the appropriate definitions of the economic concepts being used. This document is divided into three sections. Section 1 briefly outlines the pure economic theory of productivity, production, and market equilibrium. Section 2 explains why this model and its definitions must be modified for use in analyzing changes in urban transportation systems. The final section suggests an approach that might clarify present ambiguities in communication between the transportation industry and those outside observers (economists, politicians, union leaders, voters, etc.) with whom the industry must deal in order to obtain subsidies or carry out innovations. The major component of this suggested approach is that the measures of productivity and output presently being used by the transportation industry need to be modified for use in the evaluation of transit demonstration projects.

NTIS No. PB 82-221573 **Price A02**

15. TRANSPORTATION/TRANSIT MANAGEMENT

Development of Transit Bus Component Failure Statistics from Conventional Bus Card Records. Final Report.

Kosinski, M., J.F. Foerster, and F.G. Miller. University of Illinois at Chicago Circle, Urban Transportation Center. UMTA-IL-11-0028-82-2, February 1982, 63p (2 rpts).

See abstract cited earlier (p.61, 01).

NTIS No. PB 82-218694 **Price A04**

16. TRANSPORTATION PRODUCTIVITY AND EFFICIENCY

The Appropriate Measures of Productivity and Output for the Evaluation of Transit Demonstration Projects. Final Report.

Studenmund, A.H. SYSTAN, Inc., under contract to Transportation Systems Center. UMTA-MA-06-0049-81-9, March 1982, 18p.

See abstract cited earlier (p.74, 15).

NTIS No. PB 82-221573 **Price A02**

Dial-A-Ride Vehicle Time Analysis and Vehicle Productivity. Final Report.

Chung, C.C. The MITRE Corporation. UMTA-VA-06-0024-76-7, June 1976, 98p.

See abstract cited earlier (p.64, 08).

NTIS No. PB 82-237918 **Price A05**

Train Crew Reduction for Increased Productivity of Rail Transit. Executive Summary.

Vuchic, V.R., et al. University of Pennsylvania, Department of Civil & Urban Engineering. UMTA-PA-11-0023-82-1, February 1982, 6p (2 rpts).

See next abstract.

NTIS No. PB 82-225863 **Price A02**

Train Crew Reduction for Increased Productivity of Rail Transit. Final Report.

Vuchic, V.R., et al. University of Pennsylvania, Department of Civil & Urban Engineering. UMTA-PA-11-0023-82-2, February 1982, 92p (2 rpts).

With the increases in wages since the 1950s, labor costs have become the dominant portion of operating costs for transit agencies. Efforts to increase productivity of operating labor have been successful on rail transit systems. For example, development of high-capacity articulated cars, provision of separated rights-of-ways and introduction of self-service fare collection have resulted in a 20-fold increase in productivity of light rail systems. This report focuses on labor productivity in operations of rail transit systems. The focus is on rail systems since rail modes have a potential to achieve a high level of labor productivity through utilization of modern operating practices that have not yet been introduced in many cities. The study shows that while the modern rail transit systems (Lindenwold Line, San Francisco BART, Atlanta's MARTA) have one-person train crews and thus very high productivity, most older streetcar, rapid transit and regional rail systems still have obsolete, inefficient labor practices. A systematic analysis of alternative ways of productivity of operating labor can be substantially increased through rather modest efforts.

NTIS No. PB 82-225871 **Price A05**

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This Section 8/9 Index is intended to serve as a guide to the technical study reports sponsored by the Urban Mass Transportation Administration of the U.S. Department of Transportation, Washington, D.C., in accordance with Section 8 of the Urban Mass Transportation Act of 1964, as amended.

Section 8 provides for contracts and grants to states and local public agencies for the planning, engineering, designing, and evaluation of urban mass transportation projects; the development of regional transportation plans; and various other technical studies. Section 8 activities may include: 1) studies relating to management, operation, capital requirements, and economic feasibility of transit projects; 2) preparation of engineering and architectural surveys, plans, and specifications; 3) evaluation of previously funded projects; and 4) similar activities preliminary to the construction of or improved operation of mass transportation systems, facilities, or equipment. Section 8 funds are generally available to transit operators and to regional and metropolitan planning agencies.

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CALIFORNIA

Coordinated Nonurbanized Transit Development Program.
Peat, Marwick, Mitchell & Co., Washington DC, in association with JHK & Associates, San Francisco CA, prepared for California Department of Transportation, March 1982, UMTA-CA-09-8004-82-1 (Available also at NTIS, PB 82-221227, A06).
- CALIFORNIA

CONNECTICUT

Route 7 Transportation System Management Study: Norwalk and Wilton.
Urbitran Associates, Inc., New York NY, prepared for South Western Regional Planning Agency, June 1982, UMTA-CT-09-0029.
- CONNECTICUT, Norwalk and Wilton

ILLINOIS

State Street Transit Mall Study.
Department of Public Works, Bureau of Transportation Planning & Programming, Chicago IL, prepared for the City of Chicago, February 1982, UMTA-IL-09-0055.
- ILLINOIS, Chicago

INDIANA

Washington Street Transit Mall Study.
Schmidt/Claffey Architects, Inc., Indianapolis IN, in Association with Simpson & Curtin A Division of Booz-Allen, Inc., Philadelphia PA, prepared for the City of Indianapolis, Indiana, May 1981, UMTA-IN-09-0029.
- INDIANA, Indianapolis

INTERSTATE

Bus Franchise Review Criteria Study.
New York City Department of City Planning, New York NY, prepared for Tri-State Regional Planning Commission, 1982, UMTA-IT-09-0089.
- NEW YORK, New York

City of Yonkers Bus Priority Feasibility Study.
City of Yonkers Traffic Engineering Division, Yonkers NY, prepared for Tri-State Regional Planning Commission, 1982, UMTA-IT-09-0069.
- NEW YORK, Yonkers

Depot Location and Capacities Study.
SG Associates, Inc., Avondale VA, prepared for Southeastern Pennsylvania Transportation Authority, May 1982, UMTA-IT-09-0073.
- PENNSYLVANIA

INTERSTATE

Public Transportation Alternatives for Kingsport, Tennessee.
The University of Tennessee, Transportation Center, Knoxville TN, prepared for Tennessee Department of Transportation, April 1982, UMTA-IT-09-0064.
- TENNESSEE, Kingsport

Trans-Hudson Operations & Market Analysis.
Tri-State Regional Planning Commission, New York NY, prepared for New Jersey Department of Transportation, and New Jersey Transit Corporation, December 1981, UMTA-IT-09-0037.
- NEW JERSEY, AND NEW YORK

Trans-Hudson Operations & Market Analysis.
Executive Summary.
Tri-State Regional Planning Commission, New York NY, prepared for New Jersey Department of Transportation, and New Jersey Transit Corporation, December 1981, UMTA-IT-09-0037
- NEW JERSEY, AND NEW YORK

Unified Transportation Services for Morris County, New Jersey.
Summary Report.
Garman Associates, Whippany NJ, prepared for Morris County Planning Board, and Tri-State Regional Planning Commission, June 1980, UMTA-IT-09-0037.
- NEW JERSEY, Morris County

MAINE

Transportation Development Plan for Knox and Waldo Counties, Maine.
Eastern Mid-Coast Planning Commission, Rockport ME, prepared for Maine Department of Transportation, December 1981, UMTA-ME-09-8004.
- MAINE, Knox & Waldo Counties

MARYLAND

Baltimore-Washington Subarea Study.
JHK & Associates, Washington DC, prepared for the Regional Planning Council, January 1982, UMTA-MD-09-0002.
- MARYLAND, Baltimore Area (Baltimore-Washington)

Eastern Avenue Corridor Study.
JHK & Associates, Washington DC, prepared for the Regional Planning Council, January 1982, UMTA-MD-09-0002 (2 rpts).
- MARYLAND, Baltimore Area (Eastern Avenue)

MARYLAND

Eastern Avenue Corridor Study: Summary Report.
JHK & Associates, Washington DC, prepared for the Regional Planning Council, January 1982, UMTA-MD-09-0002 (2 rpts).
- MARYLAND, Baltimore Area (Eastern Avenue)

Ritchie Highway, Route 2 Corridor Study: Summary Report.
JHK & Associates, Washington DC, prepared for the Regional Planning Council, January 1982, UMTA-MD-09-0002.
- MARYLAND, Baltimore Area (Ritchie Highway, Route 2)

MINNESOTA

Downtown Shelter Development Program for City of Minneapolis. Final Report.
Adkins Association, Inc., St. Paul MN, prepared for the Metropolitan Transit Commission, and the City of Minneapolis, March 1982, UMTA-MN-09-0026.
- MINNESOTA, Minneapolis

Downtown Shelter Development Program for City of St. Paul. Final Report.
Adkins Association, Inc., St. Paul MN, prepared for the Metropolitan Transit Commission, and the City of St. Paul, March 1981, UMTA-MN-09-0026.
- MINNESOTA, St. Paul

NEW MEXICO

New Mexico Human Services Transportation Providers: Accounting, Reporting, and Coordination of Services.
The University of New Mexico, Bureau of Business & Economic Research, Albuquerque NM, prepared for State of New Mexico Highway Department Planning Bureau, June 1982, UMTA-NM-09-8005.
- NEW MEXICO

Preparing for Possible Motor Fuel Shortages: A Community Planning Guide. Grants, New Mexico.
The New Mexico Energy & Minerals Department, Conservation & Management Division, and the New Mexico State Highway Department Planning Bureau, Santa Fe NM, February 1982, UMTA-NM-09-8006 (3 rpts).
- NEW MEXICO, Grants

Preparing for Possible Motor Fuel Shortages: A Community Planning Guide. Roswell, New Mexico.
The New Mexico Energy & Minerals Department, Conservation & Management Division, and the New Mexico State Highway Department Planning Bureau, Santa Fe NM, February 1982, UMTA-NM-09-8006 (3 rpts).
- NEW MEXICO, Roswell

NEW MEXICO

Preparing for Possible Motor Fuel Shortages: A Community Planning Guide. Taos, New Mexico.
The New Mexico Energy & Minerals Department, Conservation & Management Division, and The New Mexico State Highway Department Planning Bureau, Santa Fe NM, February 1982, UMTA-NM-09-8006.
- NEW MEXICO, Taos

NEW YORK

Ferry Basin and Terminal Improvement Study for the Village of Ocean Beach, New York.
McCrosky-Reuter Planning Consultants, Mineola, Long Island NY, prepared for Tri-State Regional Planning Commission, June 1982, UMTA-NY-09-0064.
- NEW YORK, Village of Ocean Beach

Middlesex County Elderly/Handicapped Transportation Development Plan.
Middlesex County Planning Board, New Brunswick NJ, prepared for Tri-State Regional Planning Commission, 1982, UMTA-NY-09-0046.
- NEW JERSEY, Middlesex County

South Bronx Transportation Planning Project. Part 1: Crames Square.
Project for Public Spaces, Inc., New York NY, prepared for the City of New York, Department of City Planning, March 1982, UMTA-NY-09-0046 (3 rpts).
- NEW YORK, South Bronx

South Bronx Transportation Planning Project. Part 2: The Hub Station.
Gruzen & Partners, New York NY, prepared for the City of New York, Department of City Planning, February 1982, UMTA-NY-09-0046 (3 rpts).
- NEW YORK, South Bronx

South Bronx Transportation Planning Project. Part 3: Fordham Road.
Project for Public Spaces, Inc., New York NY, prepared for the City of New York, Department of City Planning, March 1982, UMTA-NY-09-0046 (3 rpts).
- NEW YORK, South Bronx

Transportation Education for Elderly & Handicapped: Dutchess County, New York. Final Report.
Playback Theatre, Inc., Poughkeepsie NY, prepared for Dutchess County, and Tri-State Regional Planning Commission, 1982, UMTA-NY-09-0054.
- NEW YORK, Dutchess County

Yonkers Taxi Reorganization Study.
City of Yonkers, Traffic Engineering Division, Yonkers NY, prepared for Tri-State Regional Planning Commission, 1982, UMTA-NY-09-0046.
- NEW YORK, Yonkers

OHIO

Ohio Taxicab Company Directory.
Ohio Department of Transportation, Bureau of Public Transportation, Columbus OH, April 1982, UMTA-OH-09-8007.
- OHIO

PUERTO RICO

Task 214 Regular Bus Transit Planning Studies:
Metropolitan Bus Authority Technical Development Area.
Metropolitan Bus Authority, Commonwealth of Puerto Rico, Department of Transportation and Public Works, Hato Rev PR, March 1981, UMTA-PR-09-0004.
- PUERTO RICO, Hato Rey

TEXAS

Transportation Cost Study for the McAllen-Parr-Edinburg-Mission-San Juan and Hidalgo Urbanized Areas.
Lower Rio Grande Valley Development Council, Regional Planning & Services Department, McAllen TX, August 1982, UMTA-TX-09-0172.
- TEXAS

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INTRODUCTION

The Urban Mass Transportation Administration (UMTA) Bi-Monthly Abstracts is published by UMTA's Information Services Staff. It contains abstracts of the results of the Research, Development, and Demonstrations; Technical Studies; and University Research projects (Sections 6, 8/9, and 11 of the Urban Mass Transportation Act of 1964, as amended), which were sponsored and funded by UMTA. The abstracted reports are available from the National Technical Information Service (NTIS). Order and loan information is provided in this report. Each abstract shown provides information on the report title, personal and corporate author(s), source of UMTA funding, date of publication, NTIS order number, and NTIS price code. The Bi-Monthly Abstracts also includes a list of recent Section 8/9 acquisitions, which are arranged by state. The Section 8/9 reports are not available from NTIS. Loan copies have been deposited with the TRISNET Regional Centers.

The Abstracts is arranged into seventeen subject classifications, and within each classification, the arrangement is alphabetical by title. These subject classifications are listed after this Introduction. A Cumulative Retrieval Index appears at the end of every third issue of the Bi-Monthly Abstracts. The next Index will appear in the November-December 1982 issue. Questions and comments concerning this Bi-Monthly Abstracts Report and the documents cited in it, should be addressed to: U.S. Department of Transportation, Urban Mass Transportation Administration, Information Services, Room 6419, 400 Seventh Street, S.W., Washington, DC 20590, Telephone: (202) 426-9157.

The Annual Volume of the Urban Mass Transportation Abstracts has been discontinued. It has been incorporated into the UMTRIS (Urban Mass Transportation Research Information Service) data base. UMTRIS was developed in 1981 within the Transportation Research Board (TRB), an agency of the National Research Council, under contract to the Urban Mass Transportation Administration. The UMTRIS computerized data system incorporates information on planning, designing, maintaining, operating, managing, and financing all modes of public transit including bus, trolley bus, light and heavy rail, advanced guideway systems, taxi and vanpool services, ferries, and local air service. The first two-volume bibliography produced by UMTRIS is dated April 1982 and contains 7064 citations and appropriate indexing for citations added to the Transportation Research Information Service (TRIS) data base between 1974 and 1980. Citations include technical reports, journal articles, handbooks, statistical sources, computer programs, and other information sources from both U.S. and international sources. The first edition of the Bibliography is entitled Urban Mass Transportation Abstracts Cumulative Bibliography, 1974-1980. Volume 1, which is the Abstracts, contains the citations arranged in 28 categories. Volume 2, which is the Index, contains more than 3400 subject terms used for the indexing along with appropriate cross references to citations in Volume 1. The Summer 1982 edition of the bibliography: Urban Transportation Abstracts, Volume 1, Number 1, is dated August 1982. It contains 1034 citations and appropriate indexing for citations added to the TRIS data base between October 1981 and April 1982. The Bibliography is distributed by TRB, 2101 Constitution Avenue, N.W., Washington, DC 20418, Telephone: (202) 334-3211.

UMTA ABSTRACTS SUBJECT CLASSIFICATION

01. Conventional Transportation Services

02. Center City/Traffic Restraints

03. Energy and Environment

04. Fares/Pricing and Services Innovations

05. Financing

06. Land Use

07. Non-Urban and Low-Density Area Transportation

08. Paratransit Systems and Services

09. Planning, Policy and Program Development

10. Political Processes and Legal Affairs

11. Safety/Product Qualification and Security

12. Socioeconomics

13. Technology Development and Deployment
    - A. Bus and Paratransit Vehicle Technology
    - B. Bus and Paratransit Operational Technology
    - C. New Systems and Automation
    - D. Rapid Rail Vehicles and Systems
    - E. Commuter Rail Vehicles and Systems
    - F. Light Rail Vehicles and Systems
    - G. Construction/Tunneling Technology

14. Transportation of Disadvantaged/Special-User Groups

15. Transportation/Transit Management

16. Transportation Productivity and Efficiency

17. Urban Goods Movement

UMTA-SPONSORED REPORTS AVAILABLE FROM THE NATIONAL TECHNICAL INFORMATION SERVICE

01. CONVENTIONAL TRANSPORTATION SERVICES

The Coordination of Pupil and Non-Pupil Transportation.

Menhard, H. R. and J. W. Rodman. Multisystems, Inc., under contract to Research & Special Programs Administration. UMTA-MA-06-0049-81-13, March 1982, 158p.

This report discusses a transportation source which has been identified as possibly being used inefficiently. This transportation source is the school bus. The majority of school transportation falls during four hours on weekdays during the school year. The remainder of the time, most of this fleet sits idle. In addition, in many cities, some of the student travel corridors are served by separate, yet duplicative school bus and conventional transit services. Home-to-school student transportation and general public transit services are provided almost entirely by separate vehicle fleets. The fact that both of these fleets are not fully utilized throughout the day indicates that there may be the potential to reduce the cost of these operations or to provide additional service to the public by coordinating the two operations. This report examines the potential benefits and disadvantages of coordinated services and identifies barriers to their implementation. This investigation has attempted to fulfill the following objectives: 1) to determine the potential benefits and costs which might result from the implementation of coordinated programs; 2) to identify the major factors which will inhibit such programs; and 3) to determine what types of coordinated pupil-general public transit may prove beneficial and are applicable in a number of areas across the United States. The report concludes that some coordination efforts should prove worthwhile and suggests several designs for further consideration and testing.

NTIS No. PB 82-230277 **Price A08**

03. ENERGY AND ENVIRONMENT

Development and Implementation of Dynamic Methodologies for Evaluating Energy Conservation Strategies.

Stephanedes, Y. J., et al. University of Minnesota, Department of Civil & Mineral Engineering. UMTA-MN-11-0004-82-2, April 1982, 181p.

The major contribution of this research is the development of a dynamic structure modeling the transportation/energy interactions in urban areas. The modified TRANSIT1 simulation model is developed and implemented to test a wide range of transportation-related energy conservation policies and evaluate their impacts across time. The two major objectives of this research study were to:
1) determine ways in which dynamic energy conservation policies act to conserve energy and influence resident mobility and transportation system economic performance both in the short-term and long-term and 2) develop dynamic methodologies to evaluate these energy conservation policies in terms of their impacts through time. A four-step research plan was formulated to address these

objectives and this plan is discussed in the report. The dynamic structure is based on a set of nonlinear differential equations describing the demand-supply-resource-energy interactions in a transportation system. Time delay associated with fluctuations in travel demand and management responsiveness to those fluctuations are explicitly included. Congestion effects on highway travel times are incorporated by connecting TRANSIT1 to the freeway FREQ6 programs. Results from policy evaluation indicate vehicle efficiency improvement and ridesharing to be most effective in conserving energy. However, their effectiveness varies with trip purpose and traveler sensitivity to travel cost. Policy effectiveness also depends on whether policies are implemented alone or in combination with other supporting or conflicting policies, and is a complex function of subsidy constraints, system productivity, and time delays.
The Executive Summary to this report is PB 82-240771, A02.

NTIS No. PB 82-240763 Price A09

Power Rate Structure Aspects of Energy Cost for Rapid Transit Systems.
Uher, R. A. and O. N. Sharma. Carnegie-Mellon University, Rail Systems Center.
UMTA-PA-06-0059-82-1, June 1982, 57p.

The subject of this report is a result of an investigation of the power rate structure of the utilities serving U.S. rapid rail transit properties. The results are presented in a way which can be used in energy management programs to develop energy cost reduction strategy models. A survey was conducted on the ten rapid rail transit properties in the United States. The results of this survey contain the characteristics of 28 rates, under which the systems are billed for power which is furnished by 15 electric utilities in 11 states. As a result of the power rate structure survey, together with other information concerning the operational practices of rapid rail transit properties, several conclusions pertinent to energy management programs have been reached. Of the properties surveyed, the Washington Metropolitan Area Transit Authority (WMATA) and the New York City Transit Authority (NYCTA) have made the most progress to date in power rate structure improvement through negotiation and active participation in rate proceedings. A case study of this progress was conducted at WMATA. It was determined that WMATA's negotiations with the utilities have resulted in recognition as a separate customer class, and implementation of a separate RT rate schedule for metrorail services.

NTIS No. PB-260118 Price A04

04. FARES/PRICING AND SERVICES INNOVATIONS

Overview of Rail Transit Fare Collection.
Rubenstein, L., et al. California Institute of Technology, Jet Propulsion Laboratory.
UMTA-CA-06-0116-80-1, August 1980, 152p.

This study was conducted on the performance of rail transit fare collection equipment. The results can be used to evaluate new and improved fare collection systems. Options in fare collection were illustrated by examining four transit systems. Reliability data, in terms of transactions per failure, were gthered for elements of these systems. Detailed investigations and subsystems failure analyses were conducted for two graduated, distance-related fare systems. Several models were developed for evaluating the impact of equipment reliability on operating costs and passenger delays. These models utilized the binomial probability distribution to calculate the incidence of simultaneous machine failures as a parameter in multi-server queueing and delay frequency models.

Significant findings were that the reliability of distance-related fare collection equipment could be improved by: 1) using procurement methods appropriate for development contracts; 2) reducing desirable but non-essential functional requirements in specifications; 3) providing more precise descriptions of field operating environments; and 4) using reliability criteria that distinguishes between component replacement and the clearing of temporary blockages. It was also found that fare collection operating and maintenance costs account for 7-31 % of revenues collected. One transit system, with less than one component malfunction per 5000 passenger/equipment interactions, operates with unattended stations. The development of improved paper currency validators was one of the higher R & D needs.

NTIS No. N81-18936 Price A08

05. FINANCING

A Study of Transit Railcar Guaranty, Warranty and Reliability Contractual Provisions.
Eldredge, D. B. and C. P. Elms. N. D. Lea & Associates, Inc. UMTA-IT-06-0229-82-1, February 1982, 71p.

This report presents the results of a study of guaranty/warranty/reliability (GWR) provisions in contracts for the procurement of transit railcars. Members of the manufacturing and supply industry have complained that the clauses were having adverse financial effects on the industry. Analyses of railcar contracts and discussions with transit operators and suppliers support the claim that GWR provisions have been made more stringent in recent years. Both the buyers and suppliers have generally not participated together in drafting GWR provisions and adversary roles have developed. Most operators and suppliers did not consider that standardized GWR provisions were applicable because of the variations in railcars being purchased and differences in local and state laws and regulations. The need to establish a cooperative relationship between buyer and seller developed as a key consensus. To further the cooperation, the idea of a Rail Transit Car Contract Warranty Model and a Screen for Preparing Rail Transit Car Warranty/Reliability Contract Provisions were developed. A "model" and "screen" are presented in this report. The screen is essentially a guide for preparing the specific clauses of the model. The authors point out that the model and screen are advisory in nature and should not be applied in an actual contract without review by legal counsel for consistency with any applicable laws and regulations.

NTIS No. PB 82-246141 Price A04

08. PARATRANSIT SYSTEMS AND SERVICES

Decision Procedures for Paratransit Market Selection and Service Evaluation.
Demetsky, M. J., et al. University of Virginia, Department of Civil Engineering. UMTA-VA-11-0010-82-2, May 1982, 86p.

The specific objectives of this study are as follows: 1) to develop procedures to identify new transit markets; 2) to develop procedures for evaluating the productivity of existing services; and 3) to develop unified decision procedures which simultaneously treat the problems of selecting new markets and services and terminating unproductive services. This research addresses the transit manager's basic problem of deciding how to increase transit service availability, while at the same time, improve its efficiency by implementing new services to

attractive market areas and discontine existing services to unproductive markets in a timely manner. This study focuses on both sides of this transit management decision problem, and presents unified procedures that simultaneously deal with both the marketing and service evaluation problems. In the marketing problem, procedures for identifying attractive market areas for paratransit services are identified. For the service evaluation problem, the focus is on analysis of existing services and justification of the elimination of unproductive services. A service development process illustrates the use of the evaluation procedures in conjunction with the market analysis. A framework for the analysis of potential paratransit markets is also described in this study. Both intramodal and intermodal paratransit service evaluations are addressed. In the intramodal evaluation, existing services are assessed through comparison of the measures to the standards to determine if the service is adequate. The intermodal evaluation of alternative services is a comparison designed for replacement of existing, failing services and for the institution of new services. Both market identification and service evaluation procedures are applied to a case study in the Tidewater Transportation District of Virginia to illustrate their utility. The Executive Summary to this report is PB 82-259250, A02.

NTIS No. PB 82-259268 Price A05

Mercer County (NJ) Coordination/Consolidation Demonstration Project.
Fleishman, D. Multisystems, Inc., under contract to Research & Special Programs Administration. UMTA-NJ-06-0008-81-1, March 1982, 192p.

From November 1977 through June 1981, Mercer County, New Jersey was the site of an Urban Mass Transportation Administration Service and Methods Demonstration which coordinated human service agency transportation programs. The Mercer County Coordination/Consolidation Demonstration Project involved the consolidation of several transportation services within a specially-created division of the county government - TRADE (Transportation Resources to Aid Disadvantaged and Elderly). This evaluation report covers the period through December 1980. TRADE evolved into a system incorporating 5 agencies, with a fleet of 18 vehicles. The monthly ridership, through 1980, was over 11,000, including approximately 1000 unduplicated users. This ridership figure is higher than many similar types of systems. The productivity of 5.89 trips per vehicle hour and the unit operating cost ratios, i.e., cost per trip, cost per mile, and cost per vehicle hour, of $2.00, $0.86, and $10.93, respectively, compare very favorable with other coordinated and consolidated systems. Various problems were encountered during the project's development. This included problems securing agency participation, frequent vehicle breakdowns, slow maintenance, limited fuel availability, high personnel turnover, and a general lack of support from the County Administration. The most important transferable findings can be summarized as follows: 1) consolidation may be, in some instances, easier to achieve than "lower" levels of coordination; 2) it is unrealistic to expect that all agencies in an area will benefit from participating in a coordinated/consolidated system; and 3) both perceived and real barriers can prevent the development of extensive trip-sharing in a coordinated/consolidated sytem.

NTIS No. PB 82-237645 Price A09

Shared-Ride Taximeters: State-Of-The-Art and Future Potential.

Newman, D. A. and R. E. Lave. SYSTAN, Inc., under contract to Research & Special Programs Administration. UMTA-MA-06-0049-81-15, May 1982, 43p.

A shared-ride taximeter is a means of calculating passenger fares for shared-group, or exclusive-ride taxi service. This report describes shared-ride taximeter equipment and operating issues and then identifies the state-of-the-art and the future potential for shared-ride taximeter services. This demonstration project was jointly sponsored by the U.S. Department of Transportation and the California Department of Transportation. This project tested shared-ride taximeter services from U.S. and foreign taximeter manufacturers and from related shared-ride taxi research. This study identified the following major findings: 1) the taxi industry is currently facing significant regulatory, ridership, productivity, and economic changes; 2) no U.S. shared-ride taxi operators use shared-ride taximeters; 3) the barriers implementing shared-ride taxi services are institutional, regulatory, and technological; 4) there is no documented experience with shared-ride taximeters manufactured in the U.S.; and 5) there are a few examples of foreign shared-ride taximeter services, and there appears to be interest for other applications. In general, this report reflects the view that technological opportunities may be available for solving shared-ride meter requirements. This report provides a bibliography related to shared ride taxi services.

NTIS No. PB 82-258708 **Price A03**

Wheelchair Securement on Bus and Paratransit Vehicles.

Stewart, C. F. and H. G. Reinl. California Department of Transportation. UMTA-CA-06-0098-81-1, April 1981, 305p.

Tests conducted by the California Department of Transportation showed that the normal motions of a moving transit bus will cause an unsecured occupied wheelchair with its brakes set, to slip or tip over. Space and a wheelchair securement system must be provided on public transit so that both wheelchair users and other passengers can be transported safely while the wheelchair users remain in their chairs. This report presents and discusses data from 42 dynamic crash tests conducted with wheelchairs, occupied by anthropomorphic dummies, to determine the performance of wheelchairs using 12 different types of securement systems. Securement systems for wheelchairs on public transportation vehicles can vary with respect to the degree of help the driver gives the wheelchair user in loading and securing the chair. The greater the degree of driver involvement, the greater the flexibility of location and number of attachment points on the wheelchair which are acceptable for a securement system. Both manual and electric powered chairs were used in the tests. Forward, rearward, and sidefacing orientations were represented. A compressed-air-propelled sled simulated a vehicle during the tests. The sled's speed at impact for the tests varied from 5.7 to 23.3 miles per hour with deceleration rates ranging from 5 to 12 gs. This report also discusses many of the problems associated with providing securement for wheelchairs and their users, as well as with setting up dynamic tests for securement systems and evaluating the test results. Recommendations are made for: 1) design loading criteria; 2) improvements for some systems; 3) non-use of some systems; 4) considerations for adopting a "standard" system for full size (35-40 foot) line haul buses; and 5) wheelchair users to provide their own personal securement to the chairs before boarding the bus.

NTIS No. PB 82-260431 **Price A14**

09. PLANNING, POLICY AND PROGRAM DEVELOPMENT

Long Range Prospects and Requirements of Urban Public Transportation.
Tomazinis, T. A, et al. University of Pennsylvania, Department of City & Regional Planning. UMTA-PA-11-0019-82-2, June 1981, 205p.

This report presents the results of a research project which investigated the long range prospects and requirements of urban public transportation in the United States as a result of the changes experienced in the economy, demography, technology, energy, and urbanization in the 1970s. This study takes into account all the factors that ostensibly would play a role in the future of urban transit. It reviews the changes in these factors and draws conclusions concerning their implications on the future of urban mass transit. The Philadelphia area is utilized as a case in point, with data on changes in urbanization patterns drawn from the four suburban counties of the Philadelphia region. The conclusions reached suggest that the future of mass transit looks much brighter at the end of the 1970s than at the beginning of the decade. In all areas of investigations, the researchers of this study found changes that favor mass transit more in 1980 than in 1970. Based on these findings, the report concludes that urban mass transit in the United States should be expected to increase significantly in importance, extent, and quality in the years between 1980 and 2000. The Executive Summary to this final report is PB 82-230848, A02.

NTIS No. PB 82-230855 Price A10

Microcomputers in Transportation: Information Source Book, August 1982.
U.S. Department of Transportation (Urban Mass Transportation Administration and Federal Highway Administration). UMTA-URT-41-82-1, August 1982, 80p.

The Urban Mass Transportation Administration (UMTA) and the Federal Highway Administration (FHWA) of the U.S. Department of Transportation have kept up with developments in the new and rapidly changing area of transportation applications of microcomputers. These two agencies have maintained up-to-date microcomputer references for transit operators, transportation planners, and traffic engineers. This document is an assorted collection of information sources for microcomputers in transportation. It contains information pertaining to: 1) microcomputer information and training; 2) microcomputer software for transportation; 3) UMTA-FHWA microcomputer projects in progress; 4) microcomputer projects in progress by various sponsors; and 5) microcomputer equipment and software. A related report, Microcomputer Applications in Human Services, is available from UMTA, Methods Division, URT-41 and FHWA, Technical Support Branch, HHP-22.

NTIS No. PB 82-265158 Price A05

11. SAFETY/PRODUCT QUALIFICATION AND SECURITY

U.S. Rapid Railcar Door Systems Assessment Report.
Lerew, R. T., et al. Booz, Allen & Hamilton, Inc. UMTA-IT-06-0242-82-1, June 1982, 101p.

The rail transit car door improvement program is one of a series of Subsystem Technology Applications to Rail Systems (STARS) being pursued by the Urban Mass Transportation Administration. The purpose of the STARS railcar door improvement program is to assess the extent to which door systems are an industry problem, and to improve door design, reliability, and safety

characteristics. This report presents the results of an assessment of railcar door system reliability. It addresses the question of whether the rail transit industry is experiencing excessive door system reliability problems, and if so, what options are available to improve the performance reliability. A door system reliability baseline was developed and a comparison of six U.S. transit systems' relative door system reliability was performed. The six transit systems studied were BART, CTA, MARTA, MBTA, NYCTA, AND WMATA. The study addresses the general factors influencing door system reliability and the site-specific problems uncovered during the on-site investigation. The report provides four basic recommendations and several additional recommendations regarding specific problems identified during the study. The appendices present supporting information on the on-site door system investigation procedures, door system physical characteristics, door system interface standards, and door system reliability calculations.

NTIS No. PB 82-263005 Price A06

13. TECHNOLOGY DEVELOPMENT AND DEPLOYMENT

Urban Transportation Abstracts, Summer 1982, Volume 1, Number 1.

Transportation Reserch Board, Urban Mass Transportation Research Information Service (UMTRIS). UMTA-DC-06-0258-82-3, August 1982, 274p.

This publication contains 1034 abstracts of journal articles, research reports, and other information sources. It also summarizes 156 ongoing research activities. The material, selected from current literature and other contemporary sources, covers a broad spectrum of transit information, ranging from technology to operations, management, economics, and government involvement. Literature searches are worldwide. The material is arranged according to the UMTRIS classification scheme in two separate sections - one for abstracts and the other for ongoing project summaries. This publication should be retained since subsequent issues will not be cumulative and will contain only new material. The first two-volume bibliographies produced by UMTRIS, entitled: Urban Mass Transportation Abstracts Cumulative Bibliography, 1974-1980, Volume 1: Abstracts and Volume 2: Index, are dated April 1982 and contain 7064 citations. These reports are available from the Publications Office of the Transportation Research Board, 2101 Constitution Avenue, N.W., Washington, DC 20418, Telephone: (202) 334-3211.

13A. BUS AND PARATRANSIT VEHICLE TECHNOLOGY

Assessment of Battery Buses and Battery Technology.

Woo, J. C. H., et al. Trans Systems Corporation. UMTA-VA-06-0087-82-1, May 1982, 92p.

Because of its effect on the urban environment and its visibility, the transit bus has become a prime target for conversion to electric propulsion, particularly through the use of the electric storage battery. In general, electric power is now an attractive alternative to the use of petroleum-based fuels in urban transportation. This study updates the previous report prepared in 1977 entitled: Assessment of Battery Buses, and includes battery buses operating in passenger-carrying transit service and under various stages of research and development. Since 1977, new data have become available from a number of battery bus

operations, and new vehicles have reached the testing stage with some operations completed and/or discontinued. Therefore, this study was commissioned to accomplish the following objectives: 1) update the technical data in the 1977 report; 2) assess battery and control technology; 3) define and discuss advantages and disadvantages associated with the operation of battery buses in urban transit; and 4) determine the most appropriate use and the application potential. The findings of the battery bus and battery technology are presented in this report. Discussions are made concerning the current status of battery and hybrid buses in the United States, Europe, and Japan. Summary tables are used to indicate the battery buses still in operation or proposed. These tables describe vehicles, operational deployments, overall battery and controller assessment, and urban applications. The scope includes contacts with user organizations, descriptions of buses, propulsion systems, operational profiles and experience, market potential, and conclusions about the technology constraints and problems.

NTIS No. PB 82-260019 Price A05

13C. NEW SYSTEMS AND AUTOMATION

Cold Weather Transit Technology Program. Volume 7: Lightweight Transit Vehicle Traction Performance on Ice and Snow.

Albach, W. C., et al. Vought Corporation. UMTA-IN-06-0009-82-7, April 1982, 65p.

This report describes traction tests of a lightweight transit test vehicle performed as part of the Cold Weather Transit Technology (CWTT) program of the Urban Mass Transportation Administration. The objective of the program is to develop new and more effective methods for assuring the dependable operation of urban mass transit systems in severe winter weather conditions. This report documents the performance of a half-scale, lightweight vehicle operated over a range of ice and snow conditions on rubber tires and steel wheels and performed under Phase I of the CWTT program. The "half-scale" name is derived from the fact that the track gage configuration is a half-scale version of an American Association of Railroads Standard. The traction tests discussed in this report were conducted primarily to determine the relative tractive characteristics of steel wheels and rubber tires on a 4,000 to 6,000 pound vehicle on ice and snow. The tests indicated that steel wheels have three times the tractive capability of rubber tires on ice, but slightly less than rubber tires on snow for the wheel size and load range tested. The findings of this program are intended to assist those involved in the design, implementation, and operation of mass transit systems which operate in cold weather environments.

NTIS No. PB 82-256488 Price A04

Cold Weather Transit Technology Program. Volume 8: Development of Transitway Countermeasures for Combatting Ice and Snow Problems.

Albach, W. C., et al. Vought Corporation. UMTA-IN-06-0009-82-8, April 1982, 169p.

The Cold Weather Transit Technology (CWTT) program is being implemented by the Urban Mass Transportation Administration through a grant to the University of Notre Dame with the Vought Corporation acting as the principal contractor. The objective of the transitway countermeasures task was to develop and evaluate energy efficient, practical methods of combatting the effects of snow and ice on vehicle operation. Transitway investigations in this program included: traction improvements, power and signal collection improvements, guideway switch

improvements, and guideway design. The full-scale automated guideway transit vehicle component and subsystem testing was satisfactorily completed. Notre Dame is also investigating and preparing the planning for a National CWTT Research Center under a separate complementing task authorized by the initial grant. This report describes the transitway countermeasures developed as part of the CWTT program.

NTIS No. PB 82-256496 Price A08

Cold Weather Transit Technology Program. Volume 9: Development of Vehicle Countermeasures for Combatting Ice and Snow Problems.

Albach, W. C., et al. Vought Corporation, UMTA-IN-06-0009-82-9, April 1982, 160p.

This report describes the development of vehicle countermeasures for combatting ice and snow problems as part of the cold weather transit technology (CWTT) program of the Urban Mass Transportation Administration. The objective of the vehicle countermeasure tasks was to develop and evaluate energy efficient, practical methods of combatting the effects of snow and ice on vehicle operation. The vehicle used in this program was the prototype vehicle P40 which was built during the AIRTRANS Urban Technology program. The developments discussed in this volume address the vehicle subsystems and components of the P40 which had previously been identified as susceptible to ice and snow problems. Other CTWW reports include Volumes 1 through 8. Those that are available from NTIS are indicated with an NTIS Order number or an UMTA Report Number. Volumes 1 through 8 are, respectively: Executive Summary; Physics of Ice and Snow at the Interface with Transitway Surfaces; Characteristics of Ice and Snow at the Interface with Transit Vehicle Surfaces; Advanced Countermeasures for Combatting Ice and Snow Problems; Transitway Design Concepts for Improving System Performance under Cold Weather Conditions (UMTA-IN-06-0009-82-5); Planning for a National CWTT Research Center (UMTA-IN-06-0009-82-6); Lightweight Transit Vehicle Traction Performance on Ice and Snow (PB 82-256488, A04); and Development of Transitway Countermeasures for Combatting Ice and Snow Problems (PB 82-256496, A08).

NTIS No. PB 82-257387 Price A08

Integration of AGT Systems With Other Transportation Modes.

Iskander, W. H. and N. M. Hage. West Virginia University. Harley O. Staggers National Transportation Center. UMTA-WV-11-0003-82-2, December 1981, 145p.

In general, the main objective of this study was to find ways to extend the reach of public transportation systems in Morgantown, West Virginia, and provide users with more convenient and economical modes of transportation. This research investigates the integration of the Morgantown Downtown People Mover (DPM) system with other transportation systems; namely, the bus system and private autos, into one comprehensive system that better serves the needs of the city. The Morgantown DPM (or personal rapid transit) system is a new mode of public transportation and is a fully automated computer-controlled system. The rubber-tired vehicles are electrically powered, and the stations are off-line, so that the flow of vehicles is not disrupted by stops at each station. A simulation model was developed to study the operation conditions for both the existing transportation system in Morgantown and the proposed integrated system. Input data for trips generated between the different zones in Morgantown were obtained from studies in which actual trips made were either counted or estimated. Operational statistics were collected for the existing system and used to validate the

simulation model. After fully testing/validating the model, it was used to simulate both the existing and proposed systems. A comparison between the performances of both systems shows superiority of the proposed one. The report concludes that the reduction of auto ridership was compensated by an increase in both bus and DPM ridership. It is recommended to keep the current DPM operations as they are, unless more coverage is needed.

NTIS No. PB 82-255621 Price A07

Power and Energy Measurement on Morgantown People Mover System.

Mc Connell, R. L. and R. J. Kuniak. West Virginia University, National Transportation Center. UMTA-WV-11-0003-82-1, December 1981, 97p.

The Morgantown People Mover is one of the most technologically advanced automated ground transportation systems in the world. It is a fully automated guideway transit system under complete computer control. There are 8.7 miles of single lane guideway with five passenger stations and two maintenance stations. The vehicles are powered from a 575 volt, three phase power rail that runs immediately above the guide rail throughout the system. The overall objectives of this study were: 1) the measurement of the power to determine real time power demand by the vehicle and 2) the development of a load flow analysis on the power system with several vehicles operating. This study developed a system of measuring and recording power demand on the MPM system. Vehicle power demand profiles are presented for some sections of the guideway. Energy usage for a round trip from Walnut to Medical Center stations was found to be 5.47 kilowatt hours. A program has been developed to utilize the power demand information along with a model of the personal rapid transit power distribution system for use in a load-flow analysis of the system. This report contains numerous computer printout charts depicting vehicle movements, power distribution, DAS hardware documentation, DAS software documentation, Data Acquisition Modules, and load-flow analysis programs.

NTIS No. PB 82-255647 Price A05

System Operations Studies for Automated Guideway Transit Systems - Discrete Event Simulation Model User's Manual.

Duke, J. F. and R. Blanchard*. General Motors Corporation, GM Transportation Systems Division, under contract to Research & Special Programs Administration and *IBM Federal Systems Division. UMTA-MA-06-0048-82-2, June 1982, 322p.

In order to examine specific Automated Guideway Transit (AGT) developments and concepts, and to build a better knowledge base for future decision-making, the Urban Mass Transportation Administration (UMTA) undertook a new program of studies and technology investigations called the UMTA Automated Guideway Transit Technology (AGTT) program. The objectives of one segment of the AGTT program, the System Operations Studies were to: 1) develop models for the analysis of system operations; 2) evaluate performance and cost; and 3) establish guidelines for the design and operation of AGT systems. This document describes the organization, operational features, user requirements, and procedures necessary for execution of the Discrete Event Simulation Model (DESM). The DESM provides the capability to model the operation of an automated mass transit system operating over a network composed of guideway links and stations within a

given time domain. A wide range of user controls and options is available within the simulator to allow modeling the effects of various operational strategies and service policy options on overall system performance. Although the dynamics of vehicle motion are not specifically modeled in the DESM, the interaction effect between vehicles traversing the automated guideway is accounted for by providing variable and fixed headway regulation schemes for vehicle positioning. In addition, the interaction effects produced between vehicles operating in the network and competing for system resources (links, merges, station berths, etc.) are accounted for in the DESM by allowing automatic event preemption within the modeling process.

NTIS No. PB 82-258518 Price A14

Technical Assessment of the Transette Transit System.

Anagnostopoulos, G. Research & Special Programs Administration. UMTA-MA-06-0069-81-4, October 1981, 86p.

This report describes an assessment of the Transette system located at the Georgia Institute of Technology in Atlanta, Georgia. The Transette system is a unique, fully-automated, engineering prototype transportation test system installed on the campus of the Institute. It is a 0.25-mile belt-driven system currently in a loop configuration, employing passive vehicles controlled and propelled by a drive belt system that permits vehicles to move at twice the speed of the belt. This report presents the background and events of the development of the Transette system and also gives a technical description of the system. A description of the system operation and performance and the system economics is provided. This report also provides the Transportation Systems Center (TSC) assessment of Transette with recommendations of what is needed for a revenue system. The first sections of the report are based on data provided by the Georgia Institute of Technology and by Transette, Inc., while the conclusions and recommendations present the evaluation and opinion of the assessment team at TSC. A study that assesses the near-term application potential of the Transette system in urban areas and recommends technological improvement areas of the system is: Transette System Application Study, PB 82-170226, A04.

NTIS No. PB 82-234360 Price A05

13D. RAPID RAIL VEHICLES AND SYSTEMS

Escalator Design Features Evaluation.

Zimmerman, W. F. and G. K. Deshpande. California Institute of Technology, Jet Propulsion Laboratory. UMTA-MA-06-0025-81-3, May 1982, 52p.

This study provides an evaluation of the effectiveness of several special design features associated with escalators in rail transit systems. The objective of this study was to evaluation the effectiveness of three escalator design features: 1) mat operation in a single direction and reversible operation; 2) two-speed option (90 or 120 or both); and 3) the use of extended flat steps. The study evaluated these design features based on the impact of each on capital and operating costs, traffic flow, and safety. Information relating to costs, performance, and safety of escalators was made available by several agencies, escalator manufacturers, and transit properties, including the Port Authority Trans Hudson, the New York City Transit Authority, the Washington Metropolitan Area Transit Authority, and the Bay Area Rapid Transit District. The properties provided information on accident frequency, capital cost, and energy consumption. Agencies contacted regarding escalator accidents included the Consumer Product Safety Commission, and the

National Safety Council. This study concluded that: 1) mat operation of escalators is cost effective in terms of energy savings; 2) dual-speed escalators give the flexibility to match the demand and speed; and 3) in the long run, properties utilizing dual-speed operation of escalators will realize improved safety, efficient traffic flow, and lower operating and maintenance costs compared to operating at either speed of 90 fpm or 120 fpm for low rise escalators.

NTIS No. PB 82-258716 Price A04

Integration of Telephone Transit Information Systems in Metropolitan New York-New Jersey.

Chase, Rosen & Wallace, Inc. UMTA-NY-06-0077-82-1, January 1982, 202p.

The objective of this two-phase study was to determine the feasibility of integrating some, or all, of the seven major telephone information systems in the New York-New Jersey metropolitan area. A Steering Committee, consisting of representatives of the Port Authority, the Metropolitan Transportation Authority, New Jersey Transit, the Tri-State Regional Planning Commission, and the New York and New Jersey Departments of Transportation, provided guidance throughout this study. This report covers the entire study and fully documents the conduct and results of both Phases 1 and 2. The seven major telephone transit information systems in the area were studied in detail, and individual improvements were identified for each center. The demand for information concerning multi-mode trips were estimated based on ridership characteristics and telephone center inquiry rates. Five conceptual levels of integration were developed and analyzed in terms of numbers of calls saved and numbers of calls handled. Design specifications, implementation procedures and cost and commitment estimates were proposed for selected short-range improvements at each center. The establishment of a technical advisory group was recommended to pursue opportunities for integration over the long range and to monitor new technological developments for possible application to telephone information centers.

NTIS No. PB 82-263898 Price A10

Proceedings of Workshop on the Modernization of Urban Rail Facilities, November 12-13, 1981

Transportation Research Board, National Academy of Sciences. UMTA-DC-06-0279-82-1, May 1982, 29p.

This report was sponsored by the Urban Mass Transportation Administration (UMTA) and the Transportation Research Board, and was held at the William Penn Hotel in Pittsburgh, Pennsylvania on November 12-13, 1981. It was attended by 40 representatives of transit and government agencies, universities, research organizations, and consulting firms. The workshop focused on two problems associated with the modernization of urban rail facilities, namely: 1) how to maintain rail service while modernization takes place and 2) how to provide funds for both capital investment and maintenance. The purpose of the workshop was to provide a forum for discussion of these two issues and to produce a report that contained recommendations useful to transit and transportation authorities in carrying out modernization programs, as well as to UMTA, in their consideration

of programs to fund. This report includes papers on planning, scheduling, and controlling urban rail modernization and construction projects. It also includes information concerning the New York Metropolitan Transit Authority's Five-Year Capital Investment Program and UMTA's future support for such programs. Discussions are included on maintenance policies and problems for both railway and equipment. Recommendations on planning, scheduling, controlling, and funding modernization of urban rail facilities, as well as a list of the participants, are provided in this report.

NTIS No. PB 82-263039 Price A03

Harmonic Characteristics of Rectifier Substations and Their Impact on Audio Frequency Track Circuits.

Nene, V. D. OAO Corporation, under contract to: Research & Special Programs Administration. UMTA-MA-06-0025-81-6, May 1982, 50p.

Research and development programs of the Urban Mass Transportation Administration (UMTA) in the area of urban rail transit have been recently restructured. These programs, collectively known as Subsystem Technology Applications to Rail Systems (STARS), include vehicle systems, wayside equipment, operational aspects, etc., and now focus on the cost effectiveness and near-term application of rail transit technology. This report is part of the STARS program of UMTA. The study of electromagnetic interference (EMI) characteristics of propulsion and other solid state power conversion equipment is a part of the STARS program. Various track circuit configurations and electromagnetic (EM) compatibilities of chopper and inverter controlled propulsion systems have been investigated in earlier studies. The reader of this report is, therefore, assumed to be familiar with track circuits and EM compatibility in general. This report describes the basic operation of substation rectifier equipment and the modes of possible interference with audio frequency track circuits used for train detection, cab signalling, and vehicle speed control. It also includes methods of estimating EM noise received by track circuits from substation operation.

NTIS No. PB 82-229659 Price A03

Power Rate Structure Aspects of Energy Cost for Rapid Transit Systems.

Uher, R. A. and O. N. Sharma. Carnegie-Mellon University, Rail Systems Center. UMTA-PA-06-0059-82-1, June 1982, 57p.

The subject of this report is a result of an investigation of the power rate structure of the utilities serving U.S. rapid rail transit properties. The results are presented in a way which can be used in energy management programs to develop energy cost reduction strategy models. A survey was conducted on the ten rapid rail transit properties in the United States. The results of this survey contain the characteristics of 28 rates, under which the systems are billed for power which is furnished by 15 electric utilities in 11 states. As a result of the power rate structure survey, together with other information concerning the operational practices of rapid rail transit properties, several conclusions pertinent to energy management programs have been reached. Of the properties surveyed, the Washington Metropolitan Area Transit Authority (WMATA) and the New York City Transit Authority (NYCTA) have made the most progress to date in power rate structure improvement through negotiation and active participation in rate proceedings. A case study of this progress was conducted at WMATA. It was determined that WMATA's negotiations with the utilities have resulted in recognition as a separate customer class, and implementation of a separate RT rate schedule for metrorail services.

NTIS No. PB 82-260118 Price A04

Rail Modernization Study Design.

Hargrove, J. Q., et al. Gannett Fleming Corddry & Carpenter, Inc., in association with Lea, Elliott, McGean & Company, Battelle Columbus Laboratories, Madison Madison International, and Ammann & Whitney. UMTA-IT-06-0270-82-1, June 1982, 204p.

This is a study to design and determine the costs of upgrading and modernizing the Nation's rail transit facilities. The design includes a discussion of the modernization/rehabilitation issues, the development of a rail system evaluation methodology, a detailed study plan to establish the modernization/rehabilitation requirements for all of the rail transit facilities, the study cost, and the period of performance schedules. This report describes a quantitative decision-making method for rail modernization projects and includes the determination and definition of the system elements to be evaluated. Also included are the measures of effectiveness, measures of effectiveness standards, and performance indicators that provide estimates of the benefits to be derived from proposed improvements. Thirty-seven different rapid, light, and commuter rail systems were investigated for possible modernization/rehabilitation projects during the ten-year period from 1985 to 1994. Three alternatives were developed and evaluated and are included in the detailed study plan and cost estimates.

PB 82-251430 Price A10

State-of-the-Art Review: Prediction and Control of Groundborne Noise and Vibration from Rail Transit Trains: Annotated Bibliography.

Nelson, J. T., et al. Wilson, Ihrig & Associates, under contract to Research & Special Programs Administration. UMTA-MA-06-0099-82-3, May 1982, 222p.

This interim report presents an annotated bibliography that has been compiled as part of a comprehensive review of the state-of-the-art in the prediction and control of groundborne noise and vibration created by rail transit operations. Included in this bibliography are over 300 references, most with annotations, of literature pertaining to groundborne noise and vibration. The selected references include published articles and books from the stndard literature, in addition to many unpublished references. These unpublished references primarily consist of reports prepared by consultants for transit systems and unpublished papers presented at professional society meetings. This research has been carried out by many different transit systems, governmental bodies, and consulting firms in Europe, Japan, and the United States. However, the authors are not aware of any previous effort to perform a comprehensive review of the existing state-of-the-art in this field. The authors point out that although this bibliography contains over 300 references, it should be recognized that with the large amount of continuing research, it is impossible to include all relevant references. However, the format that has been chosen for the bibliography allows it to be continuously updated without modifying the existing text and page numbers and only the indices will need to be modified.

NTIS No. PB 83-100420 Price A10

A Study of Transit Railcar Guaranty, Warranty and Reliability Contractual Provisions.

Eldredge, D. E. and C. P. Elms. N. D. Lea & Associates, Inc. UMTA-IT-06-0229-82-1, February 1982, 71p.

This report presents the results of a study of guaranty/warranty/reliability (GWR) provisions in contracts for the procurement of transit railcars. Members of the manufacturing and supply industry have complained that the clauses were having adverse financial effects on the industry. Analyses of railcar contracts and discussions with transit operators and suppliers support the claim that GWR provisions have been made more stringent in recent years. Both the buyers and

suppliers have generally not participated together in drafting GWR provisions and adversary roles have developed. Most operators and suppliers did not consider that standardized GWR provisions were applicable because of the variations in railcars being purchased and differences in local and state laws and regulations. The need to establish a cooperative relationship between buyer and seller developed as a key consensus. To further cooperation, the idea of a Rail Transit Car Contract Warranty Model and a Screen for Preparing Rail Transit Car Warranty/Reliability Contract Provisions were developed. A "model" and "screen" are presented in this report. The screen is essentially a guide for preparing the specific clauses of the model. The authors advise that the model and screen are advisory in nature and should not be applied in an actual contract without review by legal counsel for consistency with any applicable laws and regulations.

PB 82-246141 Price A04

U.S. Rapid Railcar Door Systems Assessment Report.

Lerew, R. T., et al. Booz, Allen & Hamilton, Inc., Transportation Consulting Division. UMTA-IT-06-0242-82-1, June 1982, 101p.

The rail transit car door improvement program is one of a series of Subsystem Technology Applications to Rail Systems (STARS) being pursued by the Urban Mass Transportation Administration. The purpose of the STARS railcar door improvement program is to assess the extent to which door systems are an industry problem, and to improve door design, reliability, and safety characteristics. This report presents the results of an assessment of railcar door system reliability. It addresses the question of whether the rail transit industry is experiencing excessive door system reliability problems, and if so, what options are available to improve the performance reliability. A door system reliability baseline was developed and a comparison of six U.S. transit systems' relative door system reliability was performed. The six transit systems studied were BART, CTA, MARTA, MBTA, NYCTA, and WMATA. The study addresses the general factors influencing door system reliability and the site-specific problems uncovered during the on-site investigation. The report provides four basic recommendations and several additional recommendations regarding specific problems identified during the study. The appendices present supporting information on the on-site door system investigation procedures, door system physical characteristics, door system interface standards, and door system reliability calculations.

NTIS No. PB82-263005 Price A06

13F. LIGHT RAIL VEHICLES AND SYSTEMS

Rail Modernization Study Design.

Hargrove, J. Q., et al. Gannett Fleming Corddry & Carpenter, Inc., in association with Lea, Elliott, McGean & Company, Battelle Columbus Laboratories, Madison Madison International, and Ammann & Whitney. UMTA-IT-06-0270-82-1, June 1982, 204p.

This is a study to design and determine the costs of upgrading and modernizing the Nation's rail transit facilities. The design includes a discussion of the modernization/rehabilitation issues, the development of a rail system evaluation methodology, a detailed study plan to establish the modernization/rehabilitation requirements for all of the rail transit facilities, the study cost, and the period of performance schedules. This report describes a quantitative decision-making method for rail modernization projects and includes the determination and

definition of the system elements to be evaluated. Also included are the measures of effectiveness, measures of effectiveness standards, and performance indicators that provide estimates of the benefits to be derived from proposed improvements. Thirty-seven different rapid, light, and commuter rail systems were investigated for possible modernization/rehabilitation projects during the ten-year period from 1985 to 1994. Three alternatives were developed and evaluated and are included in the detailed study plan and cost estimates.

NTIS No. PB 82-251430 Price A10

14. TRANSPORTATION OF DISADVANTAGED/SPECIAL-USER GROUPS

Mercer County (NJ) Coordination/Consolidation Demonstration Project.

Fleishman, D. Multisystems, Inc., under contract to Research & Special Programs Administration. UMTA-NJ-06-0008-81-1, March 1982, 192p.

From November 1977 through June 1981, Mercer County, New Jersey was the site of an Urban Mass Transportation Administration Service and Methods Demonstration, which coordinated human service agency transportation programs. The Mercer County Coordination/Consolidation Demonstrations Project involved the consolidation of several transportation services within a specially-created division of the county government - TRADE (Transportation Resources to Aid Disadvantaged and Elderly). This evaluation report covers the period through December 1980. TRADE evolved into a system incorporating five agencies, with a fleet of 18 vehicles. The monthly ridership, through 1980, was over 11,000, including approximately 1000 unduplicated users. This ridership figure is higher than many similar types of systems. The productivity of 5.89 trips per vehicle hour and the unit operating cost ratios, i.e., cost per trip, cost per mile, and cost per vehicle hour, of $2.00, $0.86, and $10.93, respectively, compare very favorably with other coordinated and consolidated systems. Various problems were encountered during the project's development. This included problems securing agency participation, frequent vehicle breakdowns, slow maintenance, limited fuel availability, high personnel turnover, and a general lack of support from the County Administration. The most important transferable findings can be summarized as follows: 1) consolidation may be, in some instances, easier to achieve than "lower" levels of coordination; 2) it is unrealistic to expect that all agencies in an area will benefit from participating in a coordinated/consolidated system; and 3) both perceived and real barriers can prevent the development of extensive trip-sharing in a coordinated/consolidated system.

NTIS No. PB 82-237645 Price A09

Wheelchair Securement on Bus and Paratransit Vehicles.

Stewart, C. F. and H. G. Reinl. California Department of Transportation. UMTA-CA-06-0098-81-1, April 1981, 305p.

Tests conducted by the California Department of Transportation showed that the normal motions of a moving transit bus will cause an unsecured occupied wheelchair with its brakes set, to slip or tip over. Space and a wheelchair securement system must be provided on public transit so that both wheelchair users and other passengers can be transported safely while the wheelchair users remain in their chairs. This report presents and discusses data from 42 dynamic crash tests conducted with wheelchairs, occupied by anthropomorphic dummies, to determine the performance of wheelchairs using 12 different types of securement systems. Securement systems for wheelchairs on public transportation vehicles can vary with respect to the degree of help the driver gives the wheelchair user in

loading and securing the chair. The greater the degree of driver involvement, the greater the flexibility of location and number of attachment points on the wheelchair which are acceptable for a securement system. Both manual and electric powered chairs were used in the tests. Forward, rearward, and sidefacing orientations were represented. A compressed-air-propelled sled simulated a vehicle during the tests. The sled's speed at impact for the tests varied from 5.7 to 23.3 miles per hour with deceleration rates ranging from 5 to 12 gs. This report also discusses many of the problems associated with providing securement for wheelchairs and their users, as well as with setting up dynamic tests for securement systems and evaluating the test results. Recommendations are made for: 1) design loading criteria; 2) improvements for some systems; 3) non-use of some systems; 4) considerations for adopting a "standard" system for full size (35-40 foot) line haul buses; and 5) wheelchair users to provide their own personal securement to the chairs before boarding the bus.

NTIS No. PB 82-260431 Price A14

15. TRANSPORTATION/TRANSIT MANAGEMENT

Integration of Telephone Transit Information Systems in Metropolitan New York-New Jersey.

Chase, Rosen & Wallace, Inc. UMTA-NY-06-0077-82-1, January 1982, 202p.

The objective of this two-phase study was to determine the feasibility of integrating some, or all, of the seven major telephone information systems in the New York-New Jersey metropolitan area. A Steering Committee, consisting of representatives of the Port Authority, the Metropolitan Transportation Authority, New Jersey Transit, the Tri-State Regional Planning Commission, and the New York and New Jersey Departments of Transportation, provided guidance throughout this study. This report covers the entire study and fully documents the conduct and results of both Phases 1 and 2. The seven major telephone transit information systems in the area were studied in detail, and individual improvements were identified for each center. The demand for information concerning multi-mode trips were estimated based on ridership characteristics and telephone center inquiry rates. Five conceptual levels of integration were developed and analyzed in terms of numbers of calls saved and numbers of calls handled. Design specifications, implementation procedures, and cost and commitment estimates were proposed for selected short-range improvements at each center. The establishment of a technical advisory group was recommended to pursue opportunities for integration over the long range and to monitor new technological developments for possible application to telephone information centers.

NTIS No. PB 82-263898 Price A10

Urban Transportation Abstracts, Summer 1982, Volume 1, Number 1.

Transportation Research Board, Urban Mass Transportation Research Information Service (UMTRIS). UMTA-DC-06-0258-82-3, August 1982, 274p.

This publication contains 1034 abstracts of journal articles, research reports, and other information sources. It also summarizes 156 ongoing research activities. The material, selected from current literature and other contemporary sources, covers a broad spectrum of transit information, ranging from technology to operations, management, economics, and government involvement. Literature searches are worldwide. The material is arranged according to the UMTRIS classification scheme in two separate sections - one for abstracts and the other

for ongoing project summaries. This publication should be retained since subsequent issues will not be cumulative and will contain only new material. The first two-volume bibliographies produced by UMTRIS, entitled: Urban Mass Transportation Abstracts Cumulative Bibliography, 1974-1980, Volume 1: Abstracts and Volume 2: Index, are dated April 1982 and contain 7064 citations. These reports are available from the Publications office of the Transportation Research Board, 2101 Constitution Avenue, N.W., Washington, DC 20418, Telephone: (202) 334-3211.

17. URBAN GOODS MOVEMENT

Goods Transportation in Urban Areas - GTUA IV Proceedings of the Fourth Engineering Foundation Conference, Easton, Maryland, 14-19 June 1981.

Fisher, G. P. and A. H. Meyburg, Editors. Engineering Foundation Conferences, UMTA-NY-06-0087-82-2, January 1982, 437p.

This document contains the papers of a five-day conference to explore contemporary issues in urban goods movement (UGM). The Conference was organized by representatives of the Engineering Foundation, the Transportation Research Board, and both the Urban Mass Transportation Administration and Federal Highway Administration of the U.S. Department of Transportation. This Conference, like its predecessors, was constructed around several workshop teams known as Probe Groups. Each group was responsible for exploring a broad problem area of contemporary importance in transportation of urban freight. Five principal topics were probed and reported upon, namely: 1) Integration of UGM into the Urban Transportation Planning Process; 2) Freight Movement in Relation to Urban and Land Use, Planning, Terminal Facilities, and Environment; 3) Fuel Conservation and Contingency Planning; 4) The Role of Regulation in UGM; and 5) UGM Research Issues. In addition to Probe Group reports and recommendations, 28 keynote, summary, and resource papers on diverse topics relevant to the Probe Group studies are presented. Three previous conferences having the same title have been held. The first was held in August 1973 at South Berwick, Maine, and was reported in Publication No.FHWA-32-01-23, dated February 1974; the second conference took place in September 1975 at Santa Barbara, California, and was reported in Publication No.OST-OS-60099, dated May 1976; and the third conference was held at Sea Island, Georgia, in December 1977, and was reported in Publication No.FHWA-PL-78-012, dated June 1978.

NTIS No. PB 82-265166 Price A18

REPORT AVAILABILITY

The reports on the preceding pages may be purchased from the National Technical Information Service (NTIS); 5285 Port Royal Road; Springfield, Virginia 22161; Telephone (703) 487-4650.

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A17	28.50	E17	43.50	T17	1,080.00
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This Section 8/9 Index is intended to serve as a guide to the technical study reports sponsored by the Urban Mass Transportation Administration of the U.S. Department of Transportation, Washington, D.C., in accordance with Section 8 of the Urban Mass Transportation Act of 1964, as amended.

Section 8/9 provides for contracts and grants to states and local public agencies for the planning, engineering, designing, and evaluation of urban mass transportation projects; the development of regional transportation plans; and various other technical studies. Section 8/9 activities may include: studies relating to management, operation, capital requirements, and economic feasibility of transit projects; 2) preparation of engineering and architectural surveys, plans, and specifications; 3) evaluation of previously funded projects; and 4) similar activities preliminary to the construction of, or improved operation of mass transportation systems, facilities, or equipment. Section 8/9 funds are generally available to transit operators and to regional and metropolitan planning agencies.

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MASSACHUSETTS

Joint Planning PROJECT Status Report: MBTA. Final Report.
City of Cambridge, Interagency Agreement. August 1982, MA-09-9001.
Massachusetts, Cambridge

NEW YORK

Citywide Paratransit System Design.
New York City Department of Transportation. August 1982, IT-09-0089.
New York, New York City

PUERTO RICO

Study of Absenteeism Problem at the Metropolitan Bus Authority.
Matta, M. C. and E. G. Amador. Metropolitan Bus Authority, Department of Transportation and Public Works. No date shown, PR-09-0004.
Puerto Rico

TEXAS

Houston Park-and-Ride Facilities: An Analysis of Survey Data.
Texas A&M University System, Texas Transportation Institute, and Beiswenger, Hoch & Associates, Inc., prepared for Metropolitan Transit Authority of Harris County. February 1982, TX-09-0158.
Texas, Houston

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INTRODUCTION

The **Urban Mass Transportation Abstracts** is published bi-monthly by the Transit Research Information Center (TRIC) of the Urban Mass Transportation Administration (UMTA). It contains abstracts of the results of the Research, Development and Demonstrations, Technical Studies, and University Research projects (Sections 6, 8/9, and 11 of the Urban Mass Transportation Act of 1964, as amended) sponsored by UMTA. The bi-monthly Abstracts are arranged into 17 subject classifications, and within each classification, the arrangement is by title. Reports listed within the Abstracts are available from the National Technical Information Service (NTIS). Order and loan information is provided at the end of each issue. Each abstract shown in this report provides information on the report title, the personal and organizational author(s), source of UMTA funding, date of publication, the NTIS order number, and the NTIS price code. A cumulative Retrieval Term Index will appear at the end of every third issue of the bi-monthly Abstracts. In addition, the bi-monthly Abstracts also include a list of recent Section 8/9 Technical Studies acquisitions. The Section 8/9 reports are arranged by states. These reports are not available from NTIS. Loan copies have been deposited with the TRISNET Regional Centers. Questions and comments concerning these publications or the reports cited within them should be addressed to: U.S. Department of Transportation, Urban Mass Transportation Administration, Information Services, Room 6432, 400 Seventh Street, S.W., Washington, D.C. 20590, (202) 426-9157.

UMTA's annual volume, **Urban Mass Transportation Abstracts**, has been discontinued; it has been incorporated into the UMTRIS (Urban Mass Transportation Research Information Service) data base. UMTRIS was developed in 1981 within the National Research Council, Transportation Research Board (TRB), under contract to the Urban Mass Transportation Administration (UMTA). The UMTRIS computerized data system incorporates information on planning, designing, maintaining, operating, managing and financing all modes of public transit including bus, trolley bus, light and heavy rail, advanced guideway systems, taxi and vanpool services, ferries, and local air service. The first Bibliography (in two volumes) produced by UMTRIS has been published; it contains 7064 citations and appropriate indexing for citations added to the Transportation Research Information Service (TRIS) data base between 1974 and 1980. Citations include technical reports, journal articles, handbooks, statistical sources, computer programs, and other information sources from both U.S. and international sources. **Volume 1: Abstracts** contains the citations arranged in 28 categories. **Volume 2: Index** contains more than 3400 subject terms used for the indexing along with appropriate cross references to citations to Volume 1. The Bibliography (in two volumes) is titled **Urban Mass Transportation Abstracts-Cumulative Bibliography 1974-1980** and has been distributed by the Transportation Research Board, 2101 Constitution Avenue, N.W., Washington, DC 20418.

UMTA ABSTRACTS SUBJECT CLASSIFICATION

01. Conventional Transportation Services

02. Center City/Traffic Restraints

03. Energy and Environment

04. Fares/Pricing and Service Innovations

05. Financing

06. Land Use

07. Non-Urban and Low-Density Area Transportation

08. Paratransit Systems and Services

09. Planning, Policy and Program Development

10. Political Processes and Legal Affairs

11. Safety/Product Qualification and Security

12. Socioeconomics

13. Technology Development and Deployment

    A. Bus and Paratransit Vehicle Technology
    B. Bus and Paratransit Operational Technology
    C. New Systems and Automation
    D. Rapid Rail Vehicles and Systems
    E. Commuter Rail Vehicles and Systems
    F. Light Rail Vehicles and Systems
    G. Construction/Tunneling Technology

14. Transportation of Disadvantaged/Special-User Groups

15. Transportation/Transit Management

16. Transportation Productivity and Efficiency

17. Urban Goods Movement

UMTA-SPONSORED REPORTS AVAILABLE AT THE NATIONAL TECHNICAL INFORMATION SERVICE

01. CONVENTIONAL TRANSPORTATION SERVICES

Assessments of the Skillcraft Small Bus. Project Memorandum.

Seekell, F.M. Transportation Systems Center, Urban Systems Division. UMTA-MA-06-0120-82-5, June 1982, 62p.

The Skillcraft (low floor) "Transmaster" Bus was manufactured in Venice, Florida, and was built to UMTA Small Bus Specifications. The Transmaster attracted the attention of the State's Department of Transportation, mainly because the low-floor bus make it valuable to Florida's elderly population. The State aided in the purchase of two prototype vehicles for Sarasota County Area Transit (SCAT) and has requested revenue service data be kept on vehicle operation, maintenance history, and rider reactions. Because of innovations introduced, UMTA sponsored a series of performance tests conducted in Florida during 1980. The Transportation Systems Center (TSC) provided the test plans, procedures, and limited financial support to the Florida DOT for these tests. The purpose of the test program was to provide a technical review of the coach by a knowledgeable and unbiased organization. The testing included a thorough review of the materials, dimensions, component list and general configuration of both the larger (32' 1/2") and smaller (28' 4 3/8") coaches. Performance tests were conducted at four separate sites in Florida for separate special concerns such as stability, hill climb, top speed and similar capabilities. The report states that the drivers and operations personnel were pleased with the coaches.

NTIS No. PB 83-122689 Price A04

Entry and Competition in the United States Transit Bus Manufacturing Industry. Project Memorandum.

Weiers, R., and M. Rossetti. Transportation Systems Center, Office of Energy & Environment. UMTA-MA-06-0120-82-1, March 1982 , 94p.

This report is an analytic paper addressing the trend toward entry into the U.S. transit bus market by new foreign manufacturers. The purpose of this study is to provide an explanation, and outline the implications of why so many companies are interested in entering the U.S. bus manufacturing industry, when there is no excess capacity, and the established manufacturers are not prospering. The study focuses on the industry that builds standard and large-capacity buses; builders of other types of buses are mentioned briefly. Since 1980, the industry has had two new producers of standard-size buses (Gillig and Neoplan) and two new producers of articulated buses (Crown Coach and M.A.N.) enter the market. The explanation developed for the interest in the U.S. bus manufacturing industry consists of three categories of causes: opportunity, impetus, and contributing factors. Regarding impetus, the explanation developed examined prospects in three bus manufacturing industries: school bus, intercity bus, and international trucks and buses.

This report discusses the responses of established manufacturers (GMC and Grumman Flxible) to the new entrants, namely, with new product offerings. The authors state that the competitive direction of the new entrants appear to be planning on expanding their model ranges so as to reduce the risk of specializing too narrowly. In summary, the new entrants have brought articulated and modern utility bus design to the transit bus market. The result is a far more segmented market, with utility and premium, articulated and standard buses available.

NTIS No. PB 83-118992 Price A05

Noise Reduction Retrofit for a "New Look" GMC Transit Bus: Service Bulletin. Final Report.

Kaye, M.C. Tri-County Metropolitan Transportation, District of Oregon, co-sponsored with U.S. Environmental Protection Agency, Office of Noise Abatement & Control. UMTA-OR-06-0005-81-1, November 1981, 64p.

This document gives instructions on how to apply a noise treatment to a contemporary city transit bus without extensive structural alterations. Prototype anti-noise treatments of two conventional transit buses were tested: a Flxible "New Look" and a GMC "New Look" model. Baseline bus configuration, noise ratings, and performance benchmarks are presented for a GMC model T8H-5307A transit bus, powered by a Detroit Diesel 8V-71N engine. This report provides instructions for retrofitting a GMC "New Look" model with a turbocharged 8V-71TAC engine and ancillary hardware. Instructions include the revision of the engine aspiration system for easier breathing, the lining of the engine compartment with an anti-noise blanket, and the silencing of the hiss of the compressed system dryer. These instuctions are complete with sources for manufactured components and raw materials and with mechanical drawings for components to be locally fabricated. Acoustic benefits and performance side-effects are given. Beneficial side-effects of turbocharging are: reduction of harmful exhaust emissions, conservation of fuel due to smaller injectors and reduced aspiration restriction. The authors state that this report is of interest primarily to bus operators wanting to reduce noise by practical means, and to government agencies, manufacturers, and planners concerned with noise reduction at a moderate cost of buses already in service.

NTIS No. PB 83-112789 Price A04

Preliminary Evaluation of the Scania 112 Bus: The First Three Months at Norwalk Transit District. Project Memorandum.

Gundersen, R., and R. Pocaro. Transportation Systems Center, Urban Systems Division. UMTA-MA-06-0120-82-1, January 1982, 51p.

The Connecticut Department of Transportation and the Norwalk Transit District (NTD) were awarded a grant for the year lease, revenue operation and evaluation of three, heavy-duty transit coaches that reportedly offer improved performance. This document provides preliminary information on the evaluation of these vehicles. The Scania-112 City Bus was ultimately selected by NTD; selection of the Scania-112 bus centered around the improved operating characteristics of the vehicle, including: fuel efficiency, low noise level, improved brake service life, improved vehicle maneuverability, and improved passenger accessibility.

In cooperation with NTD and Saab-Scania of America, Inc., the Transportation Systems Center of the U.S. Department of Transportation prepared an "Evaluation Plan for Scania-112 City Bus at Norwalk Transit District." The plan describes the tests and data needed to assess the Scania bus and the individual innovative design features. The evaluation consists of three sections: 1) visual and materials inspection, 2) non-revenue performance tests, and 3) revenue service evaluation. This report provides results on all of Section 1, part of Section 2, and status information on Section 3. Subsequent quarterly project memoranda will update and complete the evaluation.

NTIS No. PB 83-118984 **Price A04**

Technology of Articulated Transit Buses.
Final Technical Report.

Gundersen, R.G. Transportation Systems Center, Urban Systems Division. UMTA-MA-06-0120-82-4, March 1982, 136p.

Since the mid-1970s, interest has remained strong in articulated buses in U.S. transit service. This interest has been stepped-up by the desire of public transit agencies to increase passenger capacity, improve productivity, and reduce operating costs. This study provides technical assistance to urban transit managers and state DOTs for use in their analyses and decision-making related to the deployment of articulated buses. Operational and maintenance experience were obtained from each U.S. property currently using these vehicles. In addition, technical design and performance information was obtained from U.S. producers and foreign articulated bus manufacturers. The information contained in this report addresses three major aspects of these high-capacity buses: 1) status of U.S. deployment of articulated buses; 2) description of the design and technology of commercially-available articulated buses; and 3) a review of the current domestic operating and maintenance background of the articulated buses. This report provides status information on articulated bus technology and its performance, to date, in domestic service. The authors state that this information will increase the transit community's awareness of the articulated bus and its emerging role in urban transportation. This report also discusses future trends in the use of articulated buses for urban transit.

NTIS No. PB 83-114330 **Price A07**

Transit Bus Manufacturer Profiles.
Final Technical Report.

Weiers, B., and M. Rossetti. Transportation Systems Center, Urban Systems Division. UMTA-MA-06-0120-82-3, March 1982, 171p.

This report is intended as a reference work on individual companies, their products, history, facilities, and finance. Structure and competition are changing radically in the U.S. transit bus manufacturing industry. The purpose of this report is to present information on the structure and history of the U.S. transit bus manufacturing industry with a minimum of analysis. This report describes: 1) the categorization and the relationship of transit buses to other types of buses; and 2) the structure of the transit bus industry and its relationship to the larger motor vehicle industry.

This report also presents the history of the transit bus manufacturing industry from production of the first buses at the turn of the century to the present day, as well as the entry and exit of firms from the industry, the development of the Urban Mass Transportation Administration (UMTA), and the advanced design buses. This document discusses profiles of individual manufacturers, and profiles of the U.S. and Canadian builders of standard and articulated buses. Several foreign and domestic companies expressing interest in the industry are also included.

NTIS No. PB 83-114322 Price A08

02. CENTER CITY/TRAFFIC RESTRAINTS

Downtown Crossing: Auto-Restricted Zone in Boston.
Final Report.

Weisbrod, G., and W. Loudon. Cambridge Systematics, Inc., under contract to Transportation Systems Center. UMTA-MA-06-0049-82-3, July 1982, 405p.

The Downtown Crossing Project was developed with the objective of improving the urban environment of Boston's downtown retail district by implementing an auto-restricted zone (ARZ). The project involved more than the restructuring of traffic patterns to reduce the impact of automobiles. It also included elements providing better pedestrian facilities, urban design features, and encouragement of transit usage. The Downtown Crossing ARZ, implemented in 1978, involved the elimination of all auto traffic from a zone of 12 blocks encompassing 6 different streets in Boston's central business district (CBD). Some of the blocks were pedestrian-only zones, some were originally transitways and later converted to pedestrian-only zones, and some remained open only for taxi access. Physical improvements such as bricking of the streets, placement of benches, new lighting, and information kiosks, was completed in 1979. Additional aspects of the project included the extension of local bus routes to better serve the ARZ promotion activities. This evaluation report examines conditions before, during, and after construction of the Downtown Crossing ARZ, including organizational arrangements and impacts on traffic movement, transit ridership, goods deliveries, pedestrian movement, air and noise quality, shopper behavior, and business conditions. The study found that pedestrian activity and store purchases increased following the closing of the streets, although most of the increase was attributable to midday trips by the large number of office workers nearby. There were clear shifts from auto to transit for both area employees and other shoppers. There was a decrease in overall traffic volumes in the area due to both the mode shift among area visitors and the diversion of some traffic to streets further away. Both business and pedestrians felt the program was helpful in improving downtown conditions.

NTIS No. PB 83-112631 Price A18

Energy Cost Reduction Study of the Washington Metropolitan Area Transit Authority Metrorail System. Volume 1: Final Report.

Uher, R.A., and A. Sathi. Carnegie-Mellon University, Rail Systems Center, Mellon Institute. UMTA-DC-06-0315-82-1, May 1982, 201p (2 vols).

The Washington Metropolitan Area Transit Authority (WMATA) has established a program for reducing its overall energy costs. The objectives of this two-volume study are to classify the energy used by Metrorail into its primary end uses, and to identify those energy conservation strategies that have the highest potential for reducing energy costs. Although support energy (energy used in passenger stations, office buildings, and maintenance shops) is considered in this investigation, the primary emphasis is on traction energy (running the trains in revenue operation). The study involved analyzing the present energy costs, developing cost-effective energy conservation strategies, simulating the energy cost savings associated with these strategies, recommending the appropriate strategies for implementation and outlining a program for executing the recommendations. This study is the first time that the Energy Management Model (EMM), developed for the transit industry by the Rsil Systems Center at Carnegie-Mellon University, was comprehensively applied to a rapid transit property. The application to Metrorail was verified by comparing the simulated results to actual data obtained from the Potomac Electric Power Company (PEPCO). The simulated results agree to within 3 percent of the actual energy consumption. Five energy conservation strategies were recommended for implementation based on high benefit and low cost, namely: coasting, catch-up operation, passenger load factor improvement, regeneration of braking energy, and passenger station lighting improvements.

NTIS No. PB 83-115378 Price A10

Energy Cost Reduction Study of the Washington Metropolitan Area Transit Authority Metrorail System. Volume 2: Appendices.

Uher, R.A., N. Sathi, and A. Sathi. Carnegie-Mellon University, Rail Systems Center, Mellon Institute. UMTA-DC-06-0315-82-2, May 1982, 251p (2 vols).

See abstract cited above.

NTIS No. PB 83-115386 Price A12

Noise Reduction Retrofit for a "New Look" GMC Transit Bus: Service Bulletin. Final Report.

Kaye, M.C. Tri-County Metropolitan Transportation District of Oregon, co-sponsored with U.S. Environmental Protection Agency, Office of Noise Abatement and Control. UMTA-OR-06-0005-81-1, November 1981, 64p.

See abstract cited earlier (p.106, 01).

NTIS No. PB 83-112789 Price A04

Preliminary Evaluation of the Scania 112 Bus: The First Three Months at Norwalk Transit District. Project Memorandum.

Gundersen, R., and R. Pocaro. Transportation Systems Center, Urban Systems Division. UMTA-MA-06-0120-82-1, January 1982, 51p.

See abstract cited earlier (p.106, 01).

NTIS No. PB 83-118984 Price A04

11. SAFETY/PRODUCT QUALIFICATION AND SECURITY

Evaluation of the Transit Reliability Information Program. Final Report.

Uher, R.A. Carnegie-Mellon University, Rail System Center, under contract to the Transportation Systems Center. UMTA-MA-06-0126-82-1, July 1982, 176p.

This report presents an evaluation of the rail portion of the Transit Reliability Information Program (TRIP), which was designed to collect and analyze equipment reliability data on U.S. transit systems. The objectives of this evaluation were to: 1) determine how well TRIP achieves its stated objectives, 2) identify the costs and benefits of the program, and 3) make recommendations for improvement. TRIP has achieved 4 out of 7 objectives, namely: 1) a forum for focusing reliability efforts within the transit industry; 2) uniform reliability definitions for the transit industry on a working level; 3) a central repository for transit industry field failure data; and 4) distribution of TRIP data to potential users. The three objectives not yet achieved involve the uniform analysis and comparison of reliability data among properties. Present benefits include improving internal management communications, assisting development of automated failure reporting systems, and improving informal exchanges of ideas on equipment reliability. Long term benefits include improved transit system performance and reduced transit costs. Achievement of these benefits hinges upon several factors, including the ability to properly characterize the equipment stress levels and operating environments, and the support of transit management. The author states that TRIP is a worthwhile program to the transit industry because it provides a structured forum for continued, cooperative emphasis on the urgency of improving equipment reliability.

NTIS No. PB 83-117705 **Price A09**

12. SOCIOECONOMICS

Assessment of Low-Cost Elevators for Near Term Application in Transit Stations. Final Report.

Shea, K.M., M. R. Whitley, and B.S. Mahapatra. DYNATREND Incorporated, under contract to Transportation Systems Center. UMTA-MA-06-0125-82-1, July 1982, 60p.

This study of low-cost elevators for use in existing transit stations included a four-day site study of screw column elevators manufactured by the Ebel Company of Brussels, Belgium. Information was obtained on current practices pertaining to screw column elevator operations in Belgium, on current screw column elevator design, on code considerations both in Belgium and the U.S., and on the Ebel Company's policy regarding the manufacturing of the product in the U.S. The assessment team also studied design, construction, maintenance costs, and actual use. This document discusses elevators that offer low-cost options for providing access to transit stations that can be used by the elderly and handicapped (E&H), and other transportation limited persons. This document presents supporting data for selecting the screw column elevator for further evaluation. This document provides useful information for transit authority representatives selecting elevators to meet local accessibility needs. The authors state that the screw column elevator offers a low cost alternative for vertically moving E&H patrons in transit stations, as well as the advantages of ease of installation, and minimum space requirements.

NTIS No. PB 83-125526 **Price A04**

13A. BUS AND PARATRANSIT VEHICLE TECHNOLOGY

Assessments of the Skillcraft Small Bus.
Project Memorandum.
Seekell, F.M. Transportation Systems Center, Urban Systems Division.
UMTA-MA-06-0120-82-5, June 1982, 62p.
See abstract cited earlier (p. 105, 01).
NTIS No. PB 83-122689 **Price A04**

Entry and Competition in the United States Transit Bus Manufacturing Industry. Project Memorandum.
Weiers, R., and M. Rossetti. Transportation Systems Center, Office of Energy & Environment. UMTA-MA-06-0120-82-2, March 1982, 94p.
See Abstract cited earlier (p. 105, 01).
NTIS No. PB 83-118992 **Price A05**

Technology of Articulated Transit Buses.
Final Technical Report.
Gundersen, R.G. Transportation Systems Center, Urban Systems Division.
UMTA-MA-06-0120-82-4, March 1982, 136p.
See abstract cited earlier (p. 107, 01).
NTIS No. PB 83-114330 **Price A07**

Transit Bus Manufacturer Profiles.
Final Technical Report.
Weiers, B., and M. Rosetti. Transportation Systems Center, Urban Systems Division. UMTA-MA-06-0120-82-3, March 1982, 171p.
See abstract cited earlier (p. 107, 01).
NTIS No. PB 83-114322 **Price A08**

13C. NEW SYSTEMS AND AUTOMATION

Cold Weather Transit Technology Program.
Volume 5: Transitway Design Concepts for Improving System Performance Under Cold Weather Conditions.
Katona, M.G., et al. University of Notre Dame, College of Engineering.
UMTA-IN-06-0009-82-5, September 1981, 42p.
This report is one volume of a nine-volume interim report associated with the Urban Mass Transportation Administration's (UMTA) Cold Weather Transit Technology (CWTT) program. The interim report documents work accomplished during the period 1 January 1980 through 30 September 1981. The objective of the CWTT program is to develop new and more effective methods for assuring the dependable operation of urban mass transportation systems in severe winter weather conditions. Efforts to accomplish the objective are directed at advanced technology approaches to develop weather-tolerant vehicles and systems, new operational strategies, and new ice and snow prevention and removal mechanisms that can provide better ways to overcome problems presented by snow and ice. The findings of this program are intended to assist administrators, designers, planners, operators, suppliers, and others involved in the design, implementation, and operation of mass transit systems which operate in cold weather environments.

13C. NEW SYSTEMS AND AUTOMATION

This report addresses guideway/vehicle concepts and guideway/treadway materials. The report is mainly concerned with rubber-tired vehicles on reinforced concrete guideways wherein ice or snow accumulation on the guideway surface impairs the normal operation of the vehicle by loss of traction. This study identifies and investigates concepts for improving or modifying guideway designs to minimize the debilitating effects of ice and snow for automated guideway systems. It includes a state-of-the-art literature review on physical properties of reinforced concrete with emphasis on ice and snow removal technology.

NTIS No. PB 83-128736 **Price A04**

System Operations Studies for Automated Guideway Transit Systems: Discrete Event Simulation Model Programmer's Manual. Final Report.

Duke, J.F., and R. Blanchard. Generam Motors Corporation, GM Transportation Division, under contract to Transportation Systems Center.
UMTA-MA-06-0048-82-1, July 1982, 730p.

In order to examine specific automated guideway transit (AGT) developments and concepts, UMTA undertook a program of studies and technology investigations called Automated Guideway Transit Technology (AGTT) Program. The objectives of one segment of the AGTT program, the System Operations Studies, were to develop models for the analysis of system operations, to evaluate performance and cost, and to establish guidelines for the design and operation of AGT systems. This document provides a detailed description of the design, programming logic and implementation of the Discrete Event Simulation Model (DESM). The DESM provides the capability to model the operation of a mass transit system operating over a network composed of guideway links and station within a given time period. A wide range of transit classes can be modeled using the DESM. User controls and options are available within the simulator to allow modeling the effects of various operating strategies and service policy options on overall system performance in terms of providing transportation service on an individual patron basis. The Programmer's Manual for the DESM describes the program's purpose, functions, organization, variables, and processing algorithms from a maintenance viewpoint. A global variable dictionary, subprogram logic tables, and subprogram descriptions are included to aid maintenance and modification of this model. A description of debug tools built into the model to aid maintenance is also included.

NTIS No. PB 83-122770 **Price A99**

13D. RAPID RAIL VEHICLES AND SYSTEMS

Assessment of Low-Cost Elevators for Near Term Application in Transit Stations. Final Report.

Shea, K.M., M.R. Whitley, and B.S. Mahapatra. DYNATREND Incorporated, under contract to the Transportation Systems Center. UMTA-MA-06-0125-82-1, July 1982, 68p.

See abstract cited earlier (p.110, 12)

NTIS No. 83-125526 **Price A04**

Energy Cost Reduction Study of the Washington Metropolitan Area Transit Authority Metrorail System. Volume 1: Final Report.

Uher, R.A., N. Sathi, and A. Sathi. Carnegie-Mellon University, Rail Systems Center, Mellon Insitute. UMTA-DC-06-0315-82-1, May 1982, 201p. (2 vols).

The Washington Metropolitan Area Transit Authority (WMATA) has established a program for reducing its overall energy costs. The objectives of this two-volume study were to classify the energy used by Metrorail into its primary end uses, and to identify those energy conservation strategies that have the highest potential for reducing energy costs. Although support energy (energy used in passenger stations, office buildings, and maintenance shops) is considered in this investigation, the primary emphasis is on traction energy (running the trains in revenue operation). The study involved analyzing the present energy costs, developing cost-effective energy conservation strategies, simulating the energy cost savings associated with these strategies, recommending the appropriate strategies for implementation and outlining a program for executing the recommendations. This study is the first time that the Energy Management Model (EMM), developed for the transit industry by the Rail Systems Center, was comprehensively applied to a rapid transit property. The application to Metrorail was verified by comparing the simulated results to actual data obtained from the Potomac Electric Power Company (PEPCO). The simulated results agree to within 3 percent of the actual energy consumption. Five energy conservation strategies were recommended for implementation based on high benefit and low cost, namely: coasting, catch-up operation, passenger load factor improvement, regeneration of braking energy, and passenger station lighting improvements.

NTIS No. PB 83-115378 **Price A10**

Energy Cost Reduction Study of the Washington Metropolitan Area Transit Authority Metrorail System. Volume 2: Appendices.

Uher, R.A., N. Sathi, and A. Sathi. Carnegie-Mellon University, Rail Systems Center, Mellon Institute. UMTA-DC-06-0315-82-2, May 1982, 251p. (2 vols).

See abstract cited above.

NTIS No. PB 83-115386 **Price A12**

Evaluation of the Transit Reliability Information Program. Final Report.

Uher, R.A. Carnegie-Mellon University, Rail Systems Center, Carnegie Mellon Institute, under contract to Transportation Systems Center.
UMTA-MA-06-0126-82-1, July 1982, 176p.

This report presents an evaluation of the rail portion of the Transit Reliability Information Program (TRIP), which was designed to collect and analyze equipment reliability data on U.S. transit systems. This assessment was conducted at the end of its experimental phase. The objectives of this evaluation were: 1) to determine how well TRIP achieves its stated objectives, 2) to identify the costs and benefits of the program, and 3) to mare recommendations for improvement. TRIP has achieved 4 out of 7 objectives, namely: 1) a forum for focusing reliability efforts within the transit industry; 2) uniform reliability definitions for the transit industry on a working level; 3) a central repository for transit industry field failure data; and 4) distribution of TRIP data to potential users. The three objectives not yet achieved involve the uniform analysis and comparison of reliability data among properties.

NTIS No. PB 83-117705 **Price A09**

14. TRANSPORTATION OF DISADVANTAGED/SPECIAL-USER GROUPS

Assessment of Low-Cost Elevators for Near Term Application in Transit Stations. Final Report.

Shea, K.M., M.R. Whitley, and B.S. Mahapatra. DYNATREND Incorporated, under contract to Transportation Systems Center. UMTA-MA-06-0125-82-1, July 1982, 68p.

See abstract cited earlier (p. 111, 12).

NTIS No. PB 83-125559 **Price A04**

Assessment of the Skillcraft Small Bus. Project Memorandum.

Seekell, F.M. Transportation Systems Center, Urban Systems Division. UMTA-MA-06-0120-82-5, June 1982, 62p.

See abstract cited earlier (p. 105, 01).

NTIS No. PB 83-122689 **Price A04**

A Handbook Describing Low Cost Concepts and Techniques to Make Public Transportation More Accessible for Visually and Hearing Impaired Persons.

Hooper, K. Crain-Revis Associates, Inc., and The Washington Consulting Group. UMTA-DC-06-0349-82-1, April 1982, 60p.

See abstract cited earlier (p. 110, 12).

NTIS No. PB 83-125526 **Price A04**

15. TRANSPORTATION/TRANSIT MANAGEMENT

Evaluation of the Transit Reliability Information Program. Final Report.

Uher, R.A. Carnegie-Mellon University, Rail Systems Center, under contract to Transportation Systems Center. UMTA-MA-06-0126-82-1, July 1982, 176p.

See abstract cited earlier (p. 110, 11).

NTIS No. PB 83-117705 **Price A09**

REPORT AVAILABILITY

. **Purchase** from National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161.

. **Loan copies** have been deposited with the TRISNET Regional Centers at the Transportation Library, Northwestern University, Evanston, Illinois 60201, and the Institute of Transportation Studies Library, University of California-Berkeley, 412 McLaughlin Hall, Berkeley, California 94720.

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UMTA SECTION 8/9 TECHNICAL REPORT INDEX
NOVEMBER-DECEMBER 1982

This Section 8/9 Index is intended to serve as a guide to the technical study reports sponsored by the Urban Mass Transportation Administration of the U.S. Department of Transportation, Washington, D.C., in accordance with Section 8 of the Urban Mass Transportation Act of 1964, as amended.

Section 8 provides for contracts and grants to states and local public agencies for the planning, engineering, designing, and evaluation of urban mass transportation projects; the development of regional transportation plans; and various other technical studies. Section 8 activities may include: 1) studies relating to management, operation, capital requirements, and economic feasibility of transit projects; 2) preparation of engineering and architectural surveys, plans, and specifications; 3) evaluation of previously funded projects; and 4) similar activities preliminary to the construction of or improved operation of mass transportation systems, facilities, or equipment. Section 8 funds are generally available to transit operators and to regional and metropolitan planning agencies.

AVAILABILITY OF SECTION 8/9 REPORTS

These Section 8/9 technical study reports that are listed are not available from the National Technical Information Service (NTIS). Loan copies have been deposited with the TRISNET Regional Centers at the following Libraries:

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- VIRGINIA, Roanoke

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